

TIME

The
Surprising
Joy of

Virtual Reality

And why it's
about to change
the world

By Joel Stein

Palmer Luckey, 22,
inventor of the
Oculus Rift, is one
of the visionaries
making virtual reality
mainstream



IT'S THE STOPS
THAT INSPIRE
US TO GO.



Toyota Camry | toyota.com/camry

Prototype shown with options. Production model will vary. ©2015 Toyota Motor Sales, U.S.A., Inc.



Let's
Go
Places

Cover Story

Inside the Box

Virtual reality is here—and it's better than you think

By Joel Stein p. 40



Google VP Clay Bavor with a pile of Google Cardboards on June 24

Inside the Summit

Conservative billionaires Charles and David Koch are spending big on the 2016 elections

By Philip Elliott p. 28

Out in Africa

Gay rights are winning acceptance in Europe and the Americas—but in Africa, violent homophobia has the upper hand

By Aryn Baker p. 34

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Photograph by Gregg Segal for TIME

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What you said about ...

BUSH AND CLINTON Nancy Gibbs and Michael Duffy's cover story on the unlikely bond between former presidents George W. Bush and Bill Clinton—and their plans for 2016—drew praise from readers yearning for more collaboration in politics. "This is how our world is supposed to be: working together, enjoying each other's company, supporting each other," wrote Pam Leibensperger of Uniontown, Ohio.

Carolyn Walker of Sacramento even called for a bipartisan ticket with both Jeb Bush and Hillary Clinton. Others, however, said the presidential friendship

shouldn't distract from bigger issues in politics. James Day of Silverton, Ore., suggested the real story is elsewhere: "Congress has an approval rating of 19%."

ORDINARY CHILDREN Jeffery Kluger's call to accept that not all children will be extraordinary drew comments from parents and teachers alike. John Roberts of Opelika, Ala., a retired educator, wrote, "Too many times, I've witnessed children's aspirations be torpedoed by their parents' desires to tell them what's best for them." The

New York Times' Frank Bruni agreed, noting in a column that giving kids the "wiggle room to find genuine passions" is key. Meanwhile, Nathan Daniel Fisher, a 19-year-old from Charlotte, N.C., wrote that he identified with the story's subjects: "The parental overinvestment and overplanning in my life has become so extreme that I can't imagine making an authentic career decision."

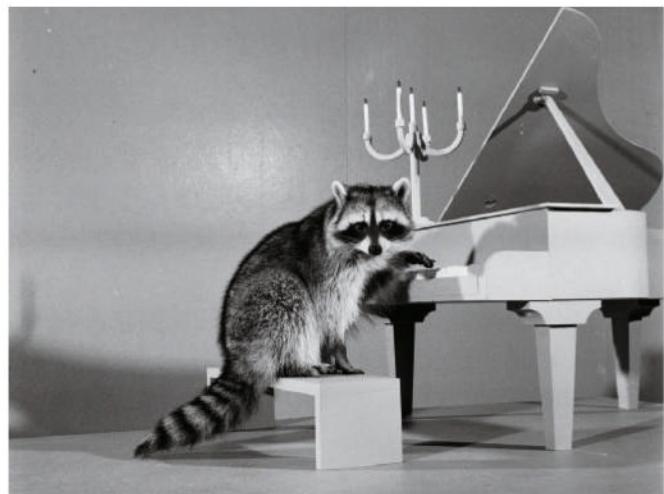
If you're raising just an ordinary, run of the mill kid, you're doing OK.'

—ANNIEIDABROWN, on Twitter

'At a time when politics seems bent on demonizing the "other side," this article was remarkably refreshing.'

DENNIS MILLER,
Lewellen, Neb.

FROM THE ARCHIVES How do you train animals to perform "human" tasks? That's the question behavioral psychologists Marian and Keller Breland set out to answer in the 1950s, ditching the conventional tactic of punishment in favor of a reward system. At their I.Q. Zoo facility, the husband and wife successfully taught a hamster to swing from a trapeze, a raccoon to play the piano (below) and more. The groundbreaking results eventually helped popularize humane animal-training techniques that are still used today. For other examples, visit life.com.



HEALTH ON TIME.COM In our series This Is Now a Thing, we check out the science of recent health trends (like those below). See more at time.com/health-thing.

FATwater	Water with special oil; claims to hydrate more than regular water does
Charcoal juice	Drinks with charcoal powder; meant to help digestion and skin
Hair burning	Scorches split ends; supposed to make hair look smoother

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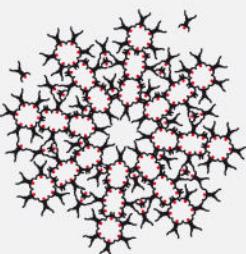


'THIS IS GOING TO BE A GAME CHANGER.'

DR. MARGARET CHAN, director-general of the World Health Organization, touting the potential of an experimental Ebola vaccine that had a 100% effectiveness rate in a trial

857

Number of adult websites that were blocked in India amid an apparent anti-pornography crackdown



164

Number of skydivers in Illinois who set a world record for the largest ever skydiving formation

'THERE'S NOT A SINGLE MUSCLE ON MY BODY THAT ISN'T FOR A PURPOSE.'

RONDA ROUSEY, UFC champion fighter, responding to critics who have described her body as too masculine



Wine
Sales of sparkling options rose more than 8% last year in the U.S.



Cheese
Kraft recalled 36,000 cases of its Singles because of choking hazards from the plastic wrapping

'WE ONLY GET ONE PLANET. THERE IS NO PLAN B.'

PRESIDENT OBAMA, proposing new rules governing the emission of greenhouse gases, in what he called "the biggest, most important step we have ever taken" to combat climate change



'I'm not going to keep living in the past.'

DARREN WILSON, the white former police officer in Ferguson, Mo., who shot unarmed black teenager Michael Brown last year, in a *New Yorker* interview ahead of the Aug. 9 anniversary of the shooting

\$51 billion

Estimated valuation of the ride-hailing company Uber, which crossed the \$50 billion threshold about two years faster than Facebook



'Adios, motherf-ckers!'

JON STEWART, longtime host of *The Daily Show*, bidding farewell to Fox News, his favorite target for mockery on the satirical news show; Stewart's last show was set to air Aug. 6



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The Brief

'OUR GIRLS NEED POSITIVE ROLE MODELS. NOT JUST INSTAGRAM PICTURES.' —PAGE 11



Coal plants like this one in Wyoming may eventually be closed under new climate regulations

ENVIRONMENT

Obama takes the lead on climate change but needs the world to follow

By Bryan Walsh

A "SUPERWICKED PROBLEM." THAT'S the way many scientists have come to characterize climate change—and it's not because they have a fondness for New England slang. A wicked problem is one that is so complex, with so many different causes and stakeholders, that it is all but impossible to solve completely. Poverty is a wicked problem; so is terrorism. But those pale in comparison with what's happening to our planet.

Climate change is caused by virtually every energy-consuming act in the modern world, touches every person on the planet, has the potential to irrevocably alter the environment on which every living thing on earth depends and extends from the present into the distant future. And nearly half the country denies it's

a problem at all. Hence the *super*.

But for such a superwicked problem, the years-in-the-making Clean Power Plan that President Obama unveiled on Aug. 3 can seem a deceptively simple solution. The Environmental Protection Agency (EPA) will give each state a goal for cutting greenhouse-gas emissions from power plants. States have to come up with their own methods to hit those targets over the next several years—cutting the use of coal, expanding renewable or nuclear power, improving energy efficiency. Another rule will require that future power plants produce about half the rate of pollution that current plants do—all but ensuring that no new coal plants will get built.

The White House predicts nothing less than an environmental sea change.

The EPA projects that by 2030, power-plant emissions will be 32% lower than they were in 2005, as a result of what Obama not inaccurately called “the single most important step America has ever taken in the fight against global climate change.”

Of course, that’s only if it happens. The reality of Obama’s plan is significantly more wicked—there’s a reason the full text runs 1,560 pages. Obama is trying to achieve by regulation what he was unable to do by legislation, after a comprehensive climate bill failed in Congress during his first term. The final result is inevitably messy, a complex compromise that tries to give the power industry time to clean up while still being tough enough to help the U.S. cut its total carbon dioxide emissions 17% below 2005 levels by 2020—a promise it made as part of global climate talks and one it needs to keep ahead of a major U.N. summit at the end of the year.

Meeting that goal would be tough enough without political opposition, but the Clean Power Plan will face major legal challenges from industry and from states with coal-dependent economies like Kentucky and West Virginia. While the EPA has the power to impose carbon-cutting plans on states that refuse to enact their own, that too could lead to a long and tangled legal fight. And if a Republican President is elected in 2016, he or she would be in a position to simply stop enforcing Obama’s climate regulations—and judging from the outraged reactions of the current slate of GOP candidates to the EPA rules, that’s not a far-fetched possibility.

Not wicked enough? Even if the Clean Power Plan works and the U.S. meets its carbon-cutting goals, that still won’t solve the much larger problem. America accounts for only about 17% of global emissions, so any effective solution to global warming will require concerted action from other big countries—most important, China, now the world’s biggest polluter. And while Washington and Beijing last year reached a historic agreement to tackle climate change, China won’t actually be reducing carbon emissions anytime soon. Other big countries like India are even less eager to commit to cuts, citing an understandable need to keep growing their economies.

For all the effort and the anguish, the world could be doing much more. The International Energy Agency has estimated that even if every nation fulfills its current pledges on climate change—including Obama’s plan—the world will still fail to prevent what scientists believe will be dangerous warming. The Clean Power Plan is a start, even a historic one. But when it comes to a superwicked problem like climate change, as Obama himself said, “there is such a thing as being too late.”

—With reporting by JUSTIN WORLAND/NEW YORK

TRENDING



DISCOVERY

Investigators confirmed Aug. 5 that a chunk of metal found in late July on the Indian Ocean island of Réunion was from the wing of a Malaysia Airlines jet that disappeared in March 2014. The discovery is the first piece of physical evidence that Flight MH 370 crashed.



CONTROVERSY

The Obama Administration was criticized by Senators in both parties after Reuters revealed that diplomats had watered down a State Department report on human trafficking to blunt criticism of 14 strategically important countries such as Malaysia and China.



TERRORISM

Israel ordered a suspected Jewish extremist detained without trial on Aug. 4 after the firebombing death of a Palestinian toddler in the West Bank. The suspect is among the first Israelis to be held under an administrative-detention law usually applied to Palestinians.

EXPLAINER

Why cities don't want the Winter Olympics

Despite having no natural snow, Beijing will host the Winter Olympics in 2022, after beating its sole rival, the Kazakh city of Almaty. Here's why it's tougher than ever to find a host:

COST

The Winter Olympics were once a humble affair—the Norwegian town of Lillehammer spent about \$1 billion on its Games in 1994. Costs have since exploded. Sochi spent a record \$51 billion in 2014. Beijing plans to limit its budget to \$1.5 billion by using existing venues.

LOW RETURNS

Olympic Games typically create 50,000 to 300,000 jobs, but most are temporary and do little to boost the local economy. Developing countries that need infrastructure improvements to roads and facilities can benefit from being a host, but few have the ideal climate for winter sports.

CLIMATE CHANGE

The warming planet has complicated the Winter Games, with even Sochi’s organizers relying on snow cannons to compensate as temperatures soared to 68°F. One study predicts that by 2100, only six of the 19 previous host cities will be cold enough to host the Games.

DIGITS

164°F

How hot it felt in the Iranian city of Bandar Mahshahr on July 31, when a high-pressure system sent the heat index above 73°C, nearly breaking the world record



TUNNEL VISION French police attempt to prevent desperate migrants from entering the Channel Tunnel, which links the French port city of Calais to England, on July 30. After migrants made over 2,000 attempts to access the tunnel over a single night on July 28, France sent 150 riot police to Calais and the British government pledged \$11 million to help secure the border. Nine people have died trying to reach the U.K. since June. *Photograph by Rob Stothard—Getty Images*

DATA

WORKING WAGES

New York City will guarantee fast-food workers hourly pay of \$15, compared with a federal minimum of \$7.25. Here's a global sampling of minimum hourly wages:



\$12.79
Australia



\$10.13
U.K.



\$9.33
Germany



\$6.11
Israel



\$4.19
Hong Kong

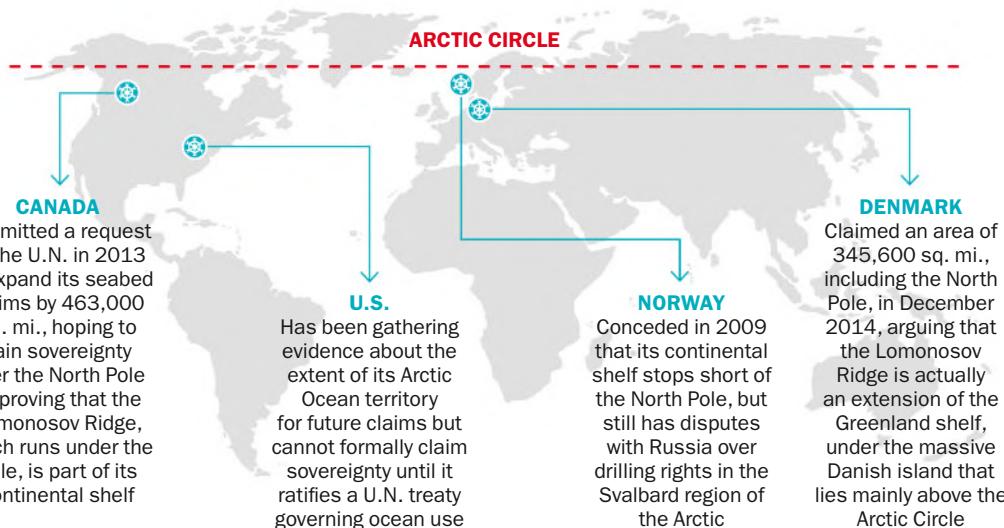


\$2.39
Slovakia

ROUNDUP

Rivals for the Arctic seabed

Russia submitted a formal U.N. claim to 463,000 sq. mi. of the Arctic region, including the North Pole, on Aug. 4. The Russians, who planted a flag 2.5 miles beneath the North Pole in 2007 by submarine, want to extend their claim under a U.N. treaty that carves up the gas- and oil-rich ocean territory based on continental-shelf extensions. Four other countries also want larger slices of the land:





TRENDING



CRIME

Police shot and killed a man suspected of attacking three people with pepper spray and wielding a hatchet at a suburban Nashville movie theater Aug. 5. The incident comes two weeks after a gunman opened fire at a theater in Lafayette, La., killing two people.



ECONOMY

Facing \$72 billion in debt, **Puerto Rico failed to make a \$58 million bond payment** Aug. 3, defaulting for the first time since becoming a U.S. territory. Puerto Rico's governor says the territory cannot afford to pay the debt.



CURRENCY

Nearly 1 in 3 registered U.S. voters thinks Eleanor Roosevelt should appear on the new \$10 bill, according to a McClatchy-Marist poll. Abolitionist Harriet Tubman received the second-most votes. When it's released in 2020, the redesigned bill will be the first to feature a woman.

THE RISK REPORT

Why good border fences don't always make good neighbors

By Ian Bremmer

DONALD TRUMP RAISED EYEBROWS recently when he demanded that the U.S. complete a wall with Mexico—and that Mexico pay for it. But give the Donald this: he tapped into a global trend. Several border-wall projects are under way worldwide, from India, which has a long-standing project to fence off much of Bangladesh, to the E.U., where anti-migrant sentiment runs high after incidents in Calais and the Mediterranean.

Saudi Arabia will soon have a 600-mile (965 km) wall on its border with Iraq, adding to the 1,100 miles (1,770 km) of barrier that already exists between the Saudis and Yemen. Turkey is spending hundreds of millions of dollars to erect a wall along its southern border with Syria in order to fend off would-be terrorists—only to find itself on the receiving end, as E.U. member Bulgaria puts up its own wall with Turkey. Hungarian Prime Minister Viktor Orban wants to complete a fence being built to curb illegal immigration from Serbia.

Walls are the archetypal quick fix. They reassure the public that there will be a sharp separation between "them" and "us." In Israel, the construction of a fence in the West

Bank has coincided with a dramatic reduction in suicide attacks, encouraging other countries to add concrete and barbed wire.

Yet Israel's experience may be more exception than rule. Walls don't deter migrants, who simply take longer, harsher routes. Walls are incredibly costly to build and maintain. They can disrupt trade and

Rather than building walls, politicians need to address root causes

Syria from coming home.

Rather than building walls, politicians need to address root causes. In Europe, that means financing local development across the Mediterranean to reduce migrants' incentive to leave their home countries. Those kinds of sober, long-term strategies won't make Trump happy. But then, what will?

QUICK TALK

Jen Welter

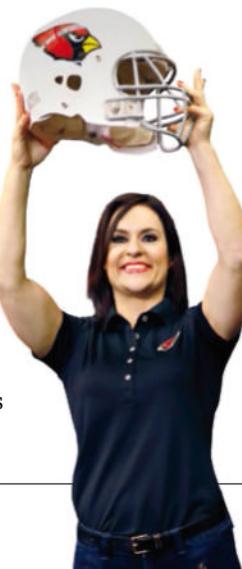
The Arizona Cardinals announced July 27 that Welter would be an assistant coach, making her the first female coach in the NFL.

It's 2015. What took so long for there to be a female NFL coach?

It really has been that last bastion of "women don't go there."

Why do you think NFL players will listen to you?

I'm patient. I think that's what these guys will respond to. I'm not going to jump up in anybody's face and make them try and listen to me.



What do you anticipate being the toughest part of the job?

Guys knowing how they can act around me. Yesterday somebody said, "Come on, gentlemen, let's go." And they were like, "Oh my gosh, Jen, we're so sorry." And I said, "Just say guys. It works for everybody."

What do you think about the Tom Brady suspension?

Hopefully people will forget about Tom Brady's balls long before they'll forget

that a girl is coaching in the NFL.

Between yourself, the U.S. soccer team and Serena Williams, are women and sports having a huge moment?

What's changing now is that people are getting excited about women in sports. They realize that for our girls to grow up into very strong, successful women, they need positive role models. Not just Instagram pictures.

—SEAN GREGORY

Milestones

ANNOUNCED

By Netflix, that it will allow employees to **take unlimited parental leave** for up to a year after the birth or adoption of a child. Employees will receive their normal pay while on leave.

DIED

► Vincent Marotta

91, co-creator of the Mr. Coffee machine, one of the first consumer automatic drip coffeemakers, brought to market in 1972.

► Natalia Molchanova

53, widely considered the best free diver in the world. She vanished after a dive off the Spanish island of Formentera and was presumed dead after a two-day search failed to find her body.

► Jerome Kohlberg, 90, a founder of private-equity firm KKR and a pioneer of the leveraged buyout. His company famously took over RJR Nabisco in 1988.

APPROVED

By the U.S. Food and Drug Administration, the **first prescription drug made by 3-D printing**. The drug, Spritam, is a dissolvable tablet for treating certain kinds of epileptic seizures.



Omar in the Kandahar area circa 1997

DIED

Mullah Mohammad Omar Taliban chief

FOR MORE THAN TWO YEARS, THE LEADER OF the Taliban was a dead man. Mullah Mohammad Omar's rule over Afghanistan came to an end in late 2001, when his refusal to surrender Osama bin Laden in the wake of the 9/11 terrorist attacks triggered the U.S. assault that ended his Taliban regime. He later fled into the mountains on the back of a motorcycle. He was never seen in public again, but even amid periodic rumors of his death, he remained a unifying figure for the militants.

On July 29, Afghanistan announced that Omar had died in a Pakistani hospital in 2013. He is thought to have been in his 50s. It's unclear why it took so long to confirm his death.

The militants named a new leader—Mullah Akhtar Mansoor—but news of Omar's death has already exacerbated fissures in the Taliban's top ranks, raising questions about the future of peace talks with the Afghan government. A fresh threat looms as the Islamic State of Iraq and Greater Syria advances beyond the Middle East. News of Omar's death could help it recruit Taliban militants and further ignite an already volatile region. —NIKHIL KUMAR

DIED

Howard Jones IVF pioneer

OVER 30 YEARS AGO, Dr. Howard W. Jones Jr. paved the way for the creation of families in the U.S. once thought to be impossible.

Jones, who died July 31 at 104, advanced in vitro fertilization (IVF) and, in collaboration with his late wife Dr. Georgeanna Seeger Jones, was responsible for the birth of the first test-tube baby in the U.S., in 1981. A trailblazer for reproductive medicine, he also performed some of the first sex-change operations.

Despite being over 100, Jones worked regularly until he was hospitalized in July. He died of respiratory failure. "If I have a legacy," he once said, "it's of someone who ... did not have any qualms about proceeding with the unknown because it was fun to do." —ALEXANDRA SIFFERLIN



A BRIEF HISTORY OF ... Treacherous toys

Major retailers recently agreed to stop selling realistic toy guns in New York, per a settlement with the state's attorney general. Here, other playthings that caused a stir:



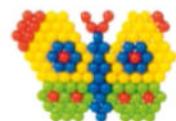
LAWN DARTS

The toys were banned by the Consumer Product Safety Commission in 1988 after contributing to three deaths and hundreds of injuries.



POKÉMON BALLS

Burger King recalled 25 million of these kids'-meal toys in 1999 because of a suffocation hazard.



AQUA DOTS

In 2007, Spin Master recalled 4.2 million sets of beads; they were coated with a chemical that turns into a date-rape drug when ingested.

—Olivia B. Waxman

**AMERICA
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ON AN
EMPTY
STOMACH.***

1 IN 6 AMERICANS STRUGGLES WITH HUNGER.
UNITE AND FIGHT TO END HUNGER IN AMERICA AT

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An influential human-rights group weighs the legalization of sex work

FOR MARIAN HATCHER, PROSTITUTION was not a choice. Ensnared in an abusive relationship with a man she says hooked her on crack and then pimped her out, she describes years spent hosting “sex parties” in a basement. Eleven years after her arrest and rehabilitation, Hatcher now counsels trafficking victims in the Chicago area and works with police to catch sex buyers. Best of all, she is reunited with her five kids. “On Mother’s Days I tried to smoke enough crack to blow my heart up,” she recalls of her years selling sex. “It is not work. It’s not an occupation.”

The question of whether prostitution is inherently exploitative is as old as the sex trade itself, but now the human-rights organization Amnesty Interna-

tional is wading into the debate. On Aug. 11 the group is scheduled to vote on a draft proposal that would recommend complete global decriminalization for both buyers and sellers of sex. Pointing to research long promoted by sex-industry advocates, Amnesty’s proposal suggests that bringing sex workers out from the shadows would enable them to seek protection from abuse and give them better access to health and social services. The U.N. has also published reports suggesting that legalizing prostitution would reduce AIDS.

Amnesty International lobbies for human rights in more than 190 countries, but can’t make or enforce laws. Still, its recommendations carry weight—Amnesty’s activism has led to

Over 43,000 women were arrested for prostitution in the U.S. in 2010

the release of tens of thousands of political prisoners since 1961.

The proposal on prostitution has set off a firestorm of opposition from faith groups, other human-rights advocates, feminist organizations and celebrities like Meryl Streep and Lena Dunham. They argue that full legalization would enrich pimps but do little to help prostituted women, whom they describe as vulnerable and often trafficked from poor nations. They want resources for those who sell sex but punishment for those who buy or profit from it, pointing to countries like Sweden, which banned the purchase of sex in 1999. And they cite a 2012 study in the journal *World Development* that found that where prostitution is legal, trafficking increases to meet demand.

The data on this subject is not perfect, but it suggests that the majority of people who work in the sex industry do so against their will. The U.N.-affiliated International Labor Office estimated in 2014 that more than 4.5 million people work in forced prostitution, and sexual exploitation generates an estimated \$99 billion a year (in a sex industry valued at around \$186 billion total, according to a report cited by the European Parliament). Amnesty’s argument is that decriminalizing and regulating the industry could prevent this exploitation.

Even if Amnesty votes yes on the proposal, it won’t be official unless the board approves it in October. But as lawmakers in France and parts of the U.K. consider laws against buying sex while sex workers agitate loudly for full legalization, the debate is sure to continue. —CHARLOTTE ALTER

BY THE NUMBERS

Spicy food's new health perk

A study of 487,375 adults saw an association between spicy food and longevity. People who ate spicy food had a lower death risk during a seven-year period than those who avoided it.

14%

REDUCTION IN RISK OF DEATH
for people who ate spicy food three to seven days per week, compared with people who ate the least amount of spicy food

1–2

DAYS PER WEEK
with some portion of a meal containing spicy food was all it took for people to have a 10% reduced risk of death



11%

REDUCTION IN CANCER-DEATH RISK
in people who ate food spiced with fresh chilies six or more days a week, compared with those who ate the least amount of spicy food





WORLD

Big game: the legal side of lion hunting

WHEN THE WORLD LEARNED IN late July about the death of Cecil the lion—a beloved resident of a national park in Zimbabwe who had been lured away by hunters, killed and beheaded for a trophy—outrage came swiftly. Walter James Palmer, the Minnesota dentist who killed Cecil, became the target of online death threats. Investigations have been launched on two continents, with a trial for Palmer's hunting guide set for September. And big airlines rushed to announce they would no longer fly the trophies on their planes.

But while Cecil's death has put a new focus on illegal poaching, other hunters are pursuing their own trophies—and it's perfectly legal. That's because of another, less publicized side of big-game trophy hunting: the sanctioned stalking of animals that are bred, grown and kept in captivity specifically so that the right to kill them can be sold to wealthy sportsmen.

It's called "canned hunting," and for five years, photographer David Chancellor has been documenting the practice. His images, taken at ranches in South Africa, show where lions and other big game await the same fate as Cecil—just without the global mourning.

—JUSTIN WORLAND

Caged lions roam at a farm in Eastern Cape, South Africa. The country has four times as many lions living in captivity as in the wild



A lion dines on an animal carcass (above). Lions gather near a farmhand holding a dead sheep (right). Farmers often feed lions animals unfit for human consumption





*A white lion trophy is
prepared at a taxidermist's
studio in South Africa*





A lioness head awaits shipment from a South African taxidermist to the U.S. Big-game hunters often keep lion heads as trophies of the animals they have killed

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The View

'IF YOU EVER WANTED TO INVADE NORTH KOREA, THAT WOULD BE THE TIME TO DO IT.' —PAGE 27



Campaigns sell emotional connections to candidates, but those feelings don't always steer votes

POLITICS

The most caring, trusted, likable candidate does not always win

By Michael Scherer

HILLARY CLINTON CARES ABOUT people like you. Just look at her Instagram account, watch her campaign ads, or listen to her speeches. That message has been embedded for months in her clockwork campaign's every utterance. "I'm running to make our economy work for you," she says one day. "I will always be in your corner," she follows up the next. Then, most succinctly, "It's your time."

And yet the more she campaigns, the smaller the share of Americans who tell pollsters she cares about people like them. A sweep of public surveys have all tracked declines since spring in her ratings for honesty, trustworthiness and favorability and in the share of the nation that believes she cares. In all of those questions, she is increasingly "underwater," with less

than half the country—sometimes less than 40%, in the case of honesty—acknowledging some basic qualities she claims for herself.

In Democratic circles, this has become a cause for concern and a rationale to entertain a new contender, namely Vice President Joe Biden, the affable, 72-year-old every-guy with a spit-shined 1967 Corvette in his garage. But Biden, who calls himself a "fingertip politician," doesn't have better polling to show for himself, and Clinton's support within her own party still floats in the upper stratosphere.

That leaves Democrats, in the dog days of summer, to ponder general-election doom. Campaigns are stories, with well-coiffed heroes, and no one wants to think their protagonist is a

lousy performer. But Democrats now have a front runner trying to re-create Barack Obama's grassroots movement without a campaign talent like Obama, while the grassroots gets infatuated with Vermont Senator Bernie Sanders, who now polls just 6 points behind Clinton in New Hampshire.

None of this is a cause for blue-state panic just yet. If performance were all that mattered, John McCain would have won the White House in 2000, and Donald Trump would have a lock on the GOP nomination in 2016. No single metric or polling question decides a victor, and each election brings a different electoral environment, with its own formula for victory. Candidates matter, first and foremost, in elections, but so does everything else.

Polling this early in a campaign, before the players are set and the public is paying attention, is almost never dispositive. At Clinton headquarters, her public-opinion magi are adjusting a campaign plan that plays to her strengths, including the prospect of becoming the first female President, while silently acknowledging her weaknesses, by keeping her in intimate settings. The current public polling on trust and caring just doesn't capture her appeal, they argue. "A lot of the traditional questions are irrelevant from election to election," explains Joel Benenson, Clinton's campaign pollster, who helped lead Obama to victory twice. "We are very confident that the attributes Hillary Clinton brings to the table will be what voters are looking for. They want a tenacious fighter."

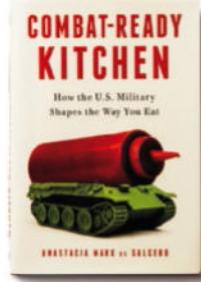
There is a lot packed into that phrase, so don't be surprised if you hear it more in the coming months. Back in 2008, when Clinton battled Obama to a popular-vote draw in the Democratic primaries, her numbers on trustworthiness dived to where they now stand. She had the same cares-about-voters score as McCain, more than 10 points below Obama's. But on questions of whether she was a "strong and decisive leader," a traditionally Republican characteristic, she rivaled McCain and easily beat Obama. And on the question, asked by Gallup, of whether she had a "clear plan for solving the country's problems," she beat both McCain and Obama, by 7 and 8 points, respectively.

Which means Clinton has her weaknesses, like anyone, but also her strengths. And there are ways for a well-funded campaign to overcome weakness. Most of them are ugly. GOP pollster Glen Bolger, who has been working with a super PAC plotting Clinton's destruction, predicts that her campaign will come out swinging, as she has in recent weeks with broadsides against Jeb Bush. "If you are not liked," he says, "you have to make your opponent even less liked."

That is the fine print on the old campaign maxim. Sure, candidates matter. But not as much as beating your opponent down the stretch.

VERBATIM
'In today's open and connected world, discussing these issues doesn't distance us; it brings us together.'

MARK ZUCKERBERG, revealing in a Facebook post that he and his wife Priscilla Chan suffered three miscarriages before she became pregnant with their first child

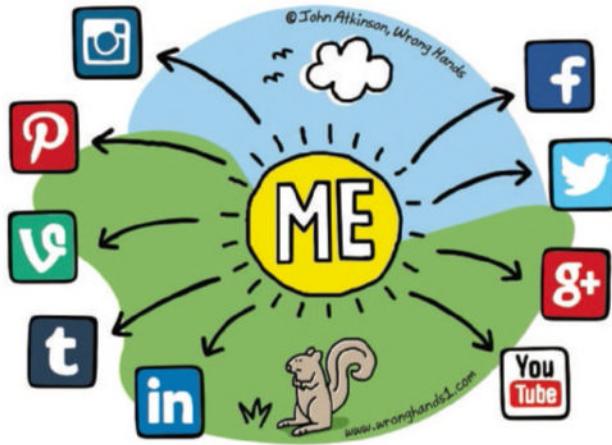


THE NUTSHELL
Combat-Ready Kitchen

EVER WONDER WHY YOU CAN BUY frozen pizza that stays "fresh" for five-plus months? Thank the U.S. military, which has outsize influence on the contents of our modern-day grocery carts, writes Anastacia Marx de Salcedo. For decades, it has worked to perfect meals that are ready for combat—meaning they won't go bad, even in extreme conditions. That has yielded many civilian-friendly (though not always healthy) advancements that trickle down to companies like Nabisco and General Mills—everything from preservatives that stop bread from going stale to the reconstituted meat in, say, the McDonald's McRib. During WW II, the military even worked with the USDA to pioneer a method for "dehydrating" cheese. It's now used to make one of America's most popular snack foods, the Cheeto.

—SARAH BEGLEY

CHARTOON
The egosystem



JOHN ATKINSON, WRONG HANDS

BIG IDEA

The hybrid airplane

Dutch carrier KLM and Delft University of Technology recently unveiled concepts for the Advanced Hybrid Engine Aircraft Development (AHEAD), a sleek aircraft designed to streamline the flying experience. Here's how it works. —S.B.

1. Unlike hybrid cars, which rely on gas and electricity, the AHEAD uses **two combustion systems**: one burns cryogenic hydrogen or liquefied natural gas; the other burns kerosene or biofuel. That mix greatly cuts carbon emissions.

2. The **blended wing body design** minimizes drag, meaning the plane will require less fuel to stay in flight. The placement of the engines also helps reduce the plane's overall noise levels by directing the sound upward rather than toward the ground.

3. KLM aims to have a plane resembling the AHEAD in the air by 2050. Once built, it could carry about 300 passengers **more than 8,700 miles** (14,000 km) without needing to refuel—about the distance from Sydney to Wichita, Kans.

**QUICK TAKE**

Fetal tissue is critical to scientific progress

By Alice Park

IN RECENT WEEKS, ANTIABORTION ACTIVISTS have leaked videos shot undercover at Planned Parenthood clinics in which staff members discuss providing fetal tissue for use in medical research. The videos are edited to suggest that the practice is sinister and that Planned Parenthood may be profiting from it, which would be illegal.

Fetal-tissue research is legal under specific circumstances—Planned Parenthood has said repeatedly it has not violated the law—and has been done for decades at nearly every leading hospital and medical institution. Still, the backlash has been swift, with some Republican leaders saying the group should be defunded and fetal research banned. But this logic confuses the politics of abortion with the scientific merits of fetal-tissue research. And the latter is indisputable.

The U.S. National Institutes of Health funded \$76 million worth of research that uses fetal tissue in 2014, and for good reason. Over

the decades, this kind of research has contributed to lifesaving vaccines for polio, rubella and chicken pox as well as advances in stem-cell research that could lead to treatments for degenerative diseases like Parkinson's.

Historically, these achievements have been overshadowed by the primary source of fetal tissue: elective abortions. But opposition to abortion and support for fetal-tissue research don't have to be mutually exclusive. Debra Mathews, a professor of bioethics at Johns Hopkins University, invokes a comparison to organ donation. People aren't generally in favor of car accidents or shootings. "But if tragedies happen," she says, "being able to have something good come out of that is seen largely as a good thing."

Park, a TIME staff writer, is the author of Stem Cell Hope: How Stem Cell Medicine Can Change Our Lives



ROUNDUP OFFBEAT POWER PLAYERS

After years of turmoil, U.S. hydropower production is poised to grow by more than 5% in 2016, according to new data. But globally, the renewable energy resource is getting some unexpected competition.

DANCING

Club Watt in Rotterdam uses floor vibrations—generated by people walking and dancing—to power its light system.

BODY HEAT

The Mall of America in Minneapolis has long relied on human visitors to help warm its corridors, and now London and Paris are piping heat from crowded subway stations into nearby homes.

**JELLYFISH**

Scientists in Sweden have harnessed a protein from the glow-in-the-dark *Aequorea victoria* jellyfish to create miniature fuel cells for electronics and more.

HUMAN WASTE

Scientists at the University of California at Irvine developed a method for deriving hydrogen from processed sewage, which has been used to power fuel cells for cars.

—Jacob Koffler

Do you need to buy organic to get the best of summer's produce?

IN AUGUST, FARMERS' MARKETS CAN OFFER AN embarrassment of riches, thanks to long, hot days that produce extra-flavorful food. But choosing what to buy among heirloom, vine-ripened and organic varieties—and that's just the tomatoes—can be confusing. Recent data suggests that Americans are increasingly selecting the latter. Organic-food sales in the U.S. have swelled to \$35.9 billion a year, and producers are required to abide by strict rules enforced by the Department of Agriculture. But since organic food is often costlier, is it worth the splurge?

That depends on your budget and how concerned you are about having synthetic pesticides, which are generally prohibited in organic farming, in your food. Some pesticides can be harmful to human health, according to the Environmental Protection Agency, though their effects—and in what quantities they pose harm—are largely unknown. For now, the peak-season foods listed below are the ones for which conventional varieties are shown to be higher in pesticide residue, according to 2015 research.

—ALEXANDRA SIFFERLIN



CORN

There's no produce more evocative of summer than corn, and August is peak season.

BUYING TIP: Purchase corn as close to its source as possible. Long shipping times can reduce sweetness. **ORGANIC OR CONVENTIONAL?** Conventional



TOMATOES

Tomatoes need many hours of light and hot days to develop their flavor, so now is the time to fill up on them. **BUYING TIP:** For ripe tomatoes, look for bright, shiny, firm skin that has a little give when squeezed gently. **ORGANIC OR CONVENTIONAL?** Organic



SUMMER SQUASH

Yellow squash, zucchini and pattypan are all in season now. **BUYING TIP:** A flavorful summer squash is smooth on the outside and typically small or medium in size. It can last in a refrigerator for up to a week. **ORGANIC OR CONVENTIONAL?** Conventional



CUCUMBERS

Although they are available year-round, cucumbers are at their most crisp and fresh in August.

BUYING TIP: Avoid cucumbers that look swollen or feel mushy. The length and diameter don't matter. **ORGANIC OR CONVENTIONAL?** Organic



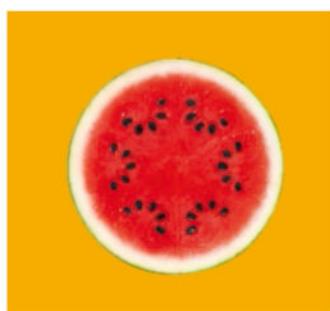
OKRA

Okra peaks in August and September. **BUYING TIP:** Look for small green pods and steer clear of bruising. (Okra can get slimy when overcooked, so follow a recipe if you're a first-time eater.) **ORGANIC OR CONVENTIONAL?** Conventional



EGGPLANT

Eggplant is at its best from July through early fall. **BUYING TIP:** The size and color can vary widely based on variety, but eggplant should be heavy and have firm, shiny skin. **ORGANIC OR CONVENTIONAL?** Conventional



WATERMELON

You can get other melons year-round, but summer is ideal for watermelon. **BUYING TIP:** Look for symmetry, a heavy weight and no bruising. Local is also ideal, since watermelon is at its sweetest when picked. **ORGANIC OR CONVENTIONAL?** Conventional



GRAPES

Warm sunshine is good for grapes, whose flavors are concentrated in August.

BUYING TIP: Pay attention to the stem. If it's brittle and brown, the grapes likely won't last very long. **ORGANIC OR CONVENTIONAL?** Organic



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The long journey from North Korea to freedom

By Bryan Walsh

NO MATTER WHERE YOU ARE, THERE'S NO COUNTRY ON earth more distant than North Korea. Satellite pictures taken at night show it in utter darkness next to its blazingly lit neighbors South Korea and China. The lack of light is a matter of electricity—outside the capital, Pyongyang, North Korea has virtually none of it—but it's also an apt symbol for a country that is entirely cut off from the rest of the world. In an age when we can see nearly every corner of the planet, when we can communicate with almost anyone, when information seems infinite, North Korea is a black hole. Nothing, and no one, leaves it.

Almost no one. Since the division of North and South Korea in 1953, thousands of North Koreans have risked their lives to

New memoirs describe life during one of the greatest disasters the world has ever known—and one of the most secret

◀ Lee, as an infant, with her mother in North Korea

flee the country, most ending up in China or eventually South Korea. Some left to escape the horrific political persecution that became a fact of North Korean life under the totalitarian rule of the country's first leader, Kim Il Sung, then continued under his son Kim Jong Il and now his grandson Kim Jong Un. But far more made the perilous journey—especially once a devastating famine began to take hold in the 1990s—because their only other choice was starvation. "The famine arrived," defector Joseph Kim writes in his new memoir, *Under the Same Sky: From Starvation in North Korea to Salvation in America*. "Everything disappeared slowly, as if by evaporation."

Kim's harrowing memoir is the best of a trio of books published this summer by North Korean defectors; the others are Hyeonseo Lee's *The Girl With Seven Names: A North Korean Defector's Story* and Eunsun Kim's *A Thousand Miles to Freedom: My Escape From North Korea*. More defectors will release memoirs this fall. These follow on the heels of older best sellers like *The Aquariums of Pyongyang* and *Escape From Camp 14*, accounts of the excruciating experiences of North Koreans caught in the country's gulags. Even fictional tales of the Hermit Kingdom captivate—Adam Johnson won the Pulitzer Prize for his 2012 North Korea novel, *The Orphan Master's Son*.

In the ultimate stamp of modern approval, defectors like Joseph Kim and Lee have become hits on the TED circuit—Lee's 2013 talk has been viewed more than 4.2 million times. Popular fascination with the survivors of repressive regimes isn't new—Aleksandr Solzhenitsyn won the 1970 Nobel Prize in Literature for his accounts of the Soviet prison system, and the imprisoned Chinese literary and social critic Liu Xiaobo was awarded the 2010 Nobel Peace Prize. But even at their worst, countries like the Soviet Union or China or Khmer Rouge-era Cambodia were less mysterious than North Korea. Aside from the heavily controlled messages that the North Korean government itself sends out, defectors are the sole sources of



Lee, far right, with her brother and mother in Chicago. She now lives in Seoul. The images on these pages have been pixelated by Lee and her publisher to protect the family

information about life in the country. They are the only light that escapes.

This new crop of defector memoirists is young—in the U.S., they'd be considered millennials—and unlike many of their predecessors, they weren't direct victims of the government. Their earliest years were spent, if not in comfort, then in safe, intact families, with enough to eat. They went to the movies or watched the homemade TV dramas that began at 8:45 sharp each night. ("If you ever wanted to invade North Korea," Joseph Kim writes, "that would be the time to do it, because half the country would be at a neighbor's house waiting for a show to begin.") They breathed the propaganda of the Kim regime as they did the air around them. Lee tells a story of the time her stepfather risked his life to save the family's portraits of Kim Il Sung and Kim Jong Il from a house fire, "an act of heroism that would win a citizen an official commendation." Eunsun Kim recounts the mass hysteria that greeted the death of Kim Il Sung on a rainy July 8, 1994, when distraught TV anchors told their audiences that the sky itself was mourning the death of the Great Leader. "I truly did believe," she writes.

That life ended when the famine began. As with everything else in North

Korea, reliable numbers on the 1990s famine are hard to come by. But the cessation of Soviet aid after the end of the Cold War, a series of cataclysmic floods and the total failure of any government response devastated North Korean agriculture. International experts put the death toll in the hundreds of thousands, perhaps even the millions.

The real value of these memoirs is the way they describe life during one of the greatest disasters the world has ever known—and one of the most secret. Each one of these authors knows what it is to starve; each one has watched family members die. They go to any

THE DEFECTORS



Eunsun Kim
Embarked on a harrowing nine-year odyssey before finally reaching freedom



Hyeonseo Lee
Escaped North Korea at 17 and returned years later on a dangerous mission to retrieve her family



Joseph Kim
Fled to China, escaping the famine that killed his father

lengths to survive—Joseph Kim at one point joins an Oliver Twist-like band of adolescent thieves, a hazardous act in a country where stealing something as small as a manhole cover can lead to a death sentence.

In a world where 800 million people go to bed hungry each night, starvation is a story that is still too common. But for North Koreans who truly believed that their leaders would protect them, the famine was as much a psychological catastrophe as a physical one. The government—which at one point launched a "Let's Eat Two Meals a Day" initiative as its people starved—could or would do nothing, even as the North Korean elite had access to cognac and lobsters. In 1996, desperate to reach kin who might have food, Joseph Kim and his family took a train so crowded with others seeking refuge that passengers crouched on the roof and hung from the windows. There were no ticket takers, no security, no information. "Everyone in the West talks about the oppressive, invasive government of North Korea, but what I experienced then was more frightening to a child: a complete absence of authority of any kind. A child wants someone to be in charge of the world. But it was clear from the train that the people in charge had abandoned it to the masses. No one was enforcing the rules any longer."

Joseph Kim eventually escaped to China—just beginning to prosper thanks to economic reforms of the 1990s—where he was taken in by Chinese Christians before he made it to the U.S. with the help of American activists. Eunsun Kim and Lee reached South Korea via China. Their North Korean stories have the rare happy ending, though Joseph Kim, who lost his entire family, notes that for famine survivors like him, "your soul had been marked in ways you couldn't know about until much later."

More than 60 years after the end of the Korean War, 25 million North Koreans live in a state that has total power over them and yet can offer them no real order, no real security, with little hope of change. In June the U.N. human-rights chief reported that North Korea was once again on the brink of a massive drought and famine. There's no limit to the darkness.

Power Brokers Recharge

To elect a Republican in 2016, the Koch brothers have retooled with more money, better strategy and a new plan for victory

By Philip Elliott/Dana Point, Calif.

CHARLES KOCH, the famously private billionaire industrialist, wanted to welcome his dinner guests before they got too far into their meal. It had been a busy day at a seaside summit for 450 conservative donors who support the network of nonprofits, civic groups and political organizations that he and his brother David founded and bankroll. “I’m sure I’ve worn you out,” the 79-year-old said on the broad lawn. Then he reflected on the experiences he suspected he shared with these allies. “We grew up with every advantage,” Koch mused. “Most of you had the same benefits that our parents gave David and me, that is, growing up



Charles Koch discusses his network's goals at a donor summit in California on Aug. 3 alongside Michael Lomax, president of the United Negro College Fund



PATRICK T. FALLON—WASHINGTON POST/GETTY IMAGES

appreciating and being imbued with the values and skills required for success. If I didn't have parents like that, I wouldn't be worth spit. I would be the worst kid on the block... Certain people say I am still."

Yes, people do say that—and much, much worse—about the Koch brothers. The billionaires help fund a political network that is larger and perhaps more consequential than the Republican National Committee. That machine wields considerable sway over GOP lawmakers and, potentially, the party's presidential nominee for 2016. Its sprawling influence is just one reason guests ponied up annual checks of at least \$100,000 to hear from five White House hopefuls and at least 14 other current or former lawmakers—as well as the two brothers themselves—at this gathering.

These twice-a-year sessions under the banner of Freedom Partners Chamber of Commerce are typically private affairs, held at classy watering holes and spread out over several days. TIME was among a handful of news organizations granted access to this summer's event, though journalists agreed not to reveal the identities of donors who wanted to remain private. Charles and David Koch are the headline-driving brawn behind this confab for VIP donors, yet thousands of other like-minded conservatives add their cash to the kitty from afar.

Having watched voters send a Democrat to the White House in the past two go-rounds, the Kochs and their allies are recalibrating ahead of 2016. In conversations over snacks, meals and cocktails, there was a grumbling acceptance from the network's top donors that trying to keep earlier events secret had backfired. "The Koch brothers could be depicted as comic-book villains," says Craig Snider, the 59-year-old son of the family that owns the Philadelphia Flyers. "They are a private family. They never really wanted the attention." As he sipped chilled white wine in one of the St. Regis Monarch Beach's courtyards, Snider shook his head at the overwhelmingly negative coverage of the Kochs and their partners. "Our side has done a very bad job telling our story. We've been defined by the other side."

So what is it like to observe the mysterious Koch brothers up close? It's not all that different from watching two ad-

Where the Kochs stand

THE BILLIONAIRES HAVE SPECIFIC PLANS TO SHAKE UP AMERICA

Export-Import Bank

THE KOCH POSITION: The government agency subsidizes giant corporations that export American goods, but groups backed by Charles and David Koch label it "crony capitalism" and want it ended.

STATUS: Despite a June 30 deadline, Congress failed to renew Ex-Im's charter. The bank has stopped making new loans but continues to service earlier ones.

Corporate tax breaks

THE KOCH POSITION: Competition in the free market—not politicians or government bureaucrats—should decide which companies thrive and which collapse.

STATUS: Many industries benefit from these tax breaks, and their trade associations are very effective when lobbying Congress to continue the benefits.

Keystone XL pipeline

THE KOCH POSITION: Increased energy production leads to jobs and improved economic security, so the pipeline from Canada to Nebraska should be built.

STATUS: Conservatives in Congress continue to try to force the Obama Administration to approve the project, which has become a rallying point against the President and his State Department.

Criminal-justice reform

THE KOCH POSITION: Sentences for nonviolent criminals are too prescriptive, and mandatory minimums take discretion away from judges.

STATUS: Bipartisan interest is growing on this issue, and Democratic Senator Dick Durbin of Illinois is working with Republican Senator Mike Lee of Utah on the Smarter Sentencing Act.

Education policy

THE KOCH POSITION: The federal government has too big a role, and parents have too little choice.

STATUS: The House passed a reauthorization of No Child Left Behind that would scale back the Department of Education.

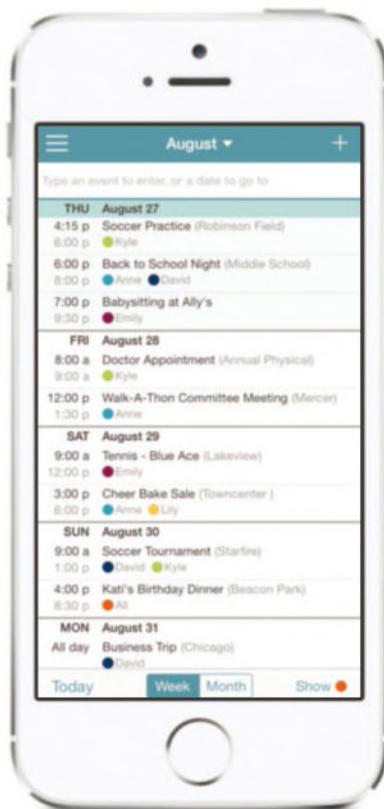
mired grandfathers oversee a large family reunion. They weave through the retreats they convene with an unassuming style that, were it not for the security trailing them, would be like that of any other septuagenarians, moving at a slower pace but refusing to be sidelined. Charles, talkative and engaging, lives in Kansas and has lost little of the quick, dry humor he used to tremendous success in business negotiations. David, somewhat quieter by nature, enjoys a more cosmopolitan life in Manhattan, where the New York City Ballet's performance hall at Lincoln Center carries his name.

They were born in Wichita, Kans., in the years leading up to the U.S. entrance into World War II. Their upbringing reflected their father's hard-nosed approach to life: disagreements were settled by fistfights. Fred Koch owned a sprawling Midwest industrial giant yet required his children to learn the trade rather than enjoy a gilded life. "I got my butt kicked every day," Charles recalls. "Father had me work every minute from the time I was 6." Both brothers went to MIT and earned graduate degrees in engineering before returning to Kansas, where they expanded the company their father founded into what today has become the second largest privately held company in the U.S.

The Kochs are often described as either ultra-conservative or libertarian, but those labels don't fully explain their ideology. Yes, they believe that government has become too big; they fiercely oppose mandates and regulations, and they could not be more horrified by what they call the permanent Washington establishment. And it is fair to say they don't care for President Obama. If their wish list of government rollbacks were achieved, it would help the bottom line for Koch Industries, a vast collection of companies and interests that produce everything from Brawny paper towels to Stainmaster Carpets to as many as 600,000 barrels of crude each day.

But some of what this network is trying to accomplish at sessions like those held here is at odds with Koch Industries' bottom line. The groups oppose government subsidies of all kinds, even those that help the Koch companies' profits. They would like to see Congress kill the Export-Import Bank and the

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ethanol subsidies that benefit the family operations that turn Iowa corn into fuel. Koch-backed groups have made building the Keystone XL pipeline a must-do task, even though it would compete with Koch Industries' refineries. "The prevailing view created by the mainstream media is that this is to enrich Charles and David Koch," says Mark Holden, general counsel for Koch Industries and one of the brothers' top lieutenants. "We take a lot of positions that are better long-term for all of us in the country, even though in the short term we would lose money."

All of these arguments were raised during the summit in Dana Point, which has become something of a refresher course on conservative thinking. For instance, guests attended one session to hear how Chile reduced its poverty rate from 50% to 8% in a generation, but at a political cost. Other donors received updates on the Koch-led crusade against mandatory minimum sentences for nonviolent drug offenders as fiscally, constitutionally and morally unacceptable. Some guests attended a small dinner to talk about free-speech rights on college campuses with Mitch Daniels, a former White House budget chief and Indiana governor who now serves as president of Purdue University. But economic policy, really, ran through most of the discussions.

Charles Koch told his allies, including CEOs of well-known American companies, to ditch government tax breaks and subsidies for their own good. "Obviously, this prescription will not be an easy pill for many businesspeople to swallow," he said, the sun setting over the Pacific Ocean, just a golf-cart ride away. "Because short-term, taking the principled path is going to cost some companies some profits, as it will for Koch Industries."

WHATEVER THEIR AGENDA, losing isn't part of it. In all, groups under the Koch umbrella plan to spend about \$889 million before Election Day 2016, and roughly two-thirds of it will try to determine how voters cast their ballots. Part of their advantage is in how they charter themselves: the groups can accept unlimited donations, and because of the way many are structured, donors' identities can largely be kept secret. (By contrast, the RNC has fundraising caps and



David Koch

Questions of legacy loom over the Kansas-born brothers, who are in their 70s

must disclose everyone who gives \$200 or more.)

The Koch-based network now is looking at how best to spend the money. During the summit, top Republican strategists told the Koch faithful that four states would be the biggest focus for the next two years: Florida, Ohio, North Carolina and Virginia. It is almost impossible for an eventual Republican nominee to win the White House without those states. The donors are also continuing to invest in i360, a Koch-built database containing some of the most sophisticated information on voters' interests and habits. "You can have all the academic debate you want to," says Art Pope, a mega-donor from North Carolina and Koch friend. "But eventually it takes elected leaders to change the laws and change the policies."

That focus helps explain why Marco Rubio, Scott Walker, Ted Cruz, Jeb Bush and Carly Fiorina all spent time with these donors at this summit. Each took turns praising the Koch network's vision of more-limited government while lending their voices to the chorus of praise for what Charles and David Koch have accomplished. Rubio, Walker and Cruz are favorites with this crowd and old hands at the weekend. Bush was attending his first summit and soothed some donors' unease about his brother; these summits were born out of frustration that federal

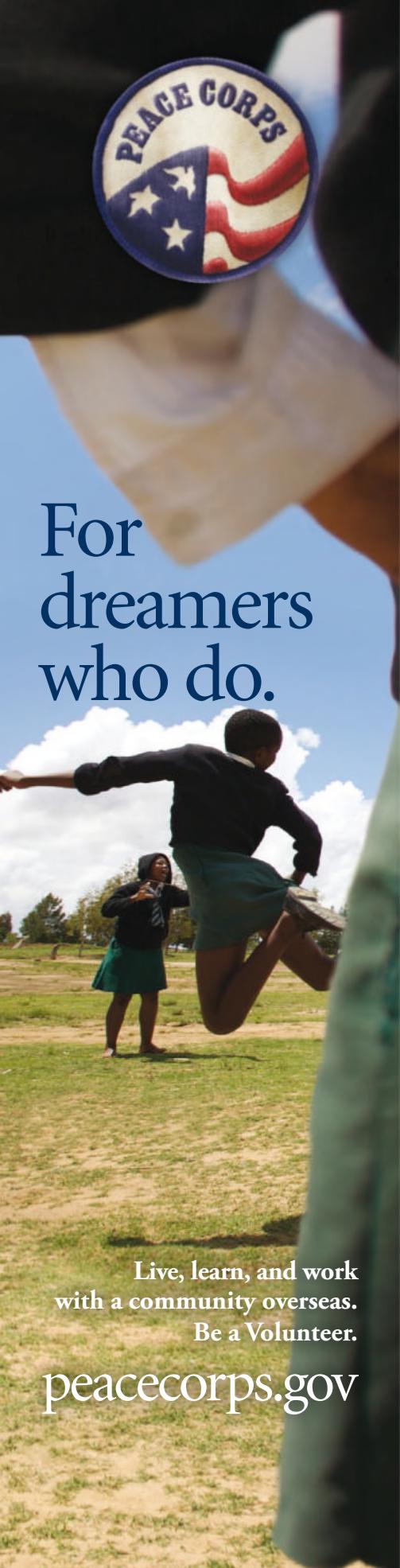
spending was growing under President George W. Bush. Few knew Fiorina, and she worked the crowd hard to fix that.

But something else was visible at the Dana Point gathering as well. Charles Koch recognizes that the GOP cannot win a national election if it cannot expand its appeal beyond the types of conservatives who huddle with him at these retreats. Just consider the organizational chart of groups that now operate with Freedom Partners' backing: grassroots-driven Americans for Prosperity, youth-focused Generation Opportunity, Hispanic-oriented LIBRE Initiative, the female-directed Concerned Women for America. At the same time, millions of dollars are flowing through the Koch network to the United Negro College Fund; its president, Michael Lomax, lectured these donors on why historically black colleges and universities matter during an outdoor dinner party at this summit.

On the lobbying front, Freedom Partners-backed groups have linked arms with the liberal Center for American Progress and ACLU for a bipartisan push on criminal-justice reform. Such work has won the Kochs notice—and some guarded praise—from the White House. No one expects the entente to last long. "Last summer, some of them were attacking us. Now we're working with them," says Holden, the Koch Industries lawyer. "I know they're going to be attacking us later."

The criticism is unlikely to end no matter how wide this moneyed network throws open its doors. But the modest amount of transparency suggests that the Koch brothers are starting to contemplate their legacies. For David Koch, it will be philanthropic giving that is almost unrivaled: \$1.3 billion to charities, including \$225 million to Memorial Sloan Kettering Cancer Center in New York City.

For Charles Koch, the goal is a realignment of policy and politics that, in his view, will preserve the America he knew as a child, when a kid from Kansas could turn the family business into a global player. "These guys are using business principles to create a political solution," says Tim Busch, an Orange County lawyer and loyal Koch donor. "They're creating a force to be reckoned with, so that the political parties have to deal with them and respect them."



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The Court will hold a hearing on **November 13, 2015 at 10:00 a.m.** to consider whether to approve the Settlements and a request for attorneys' fees plus reimbursement of litigation expenses and awards to Class Representatives. The total attorney fee request for all Plaintiffs' counsel shall not exceed one-third of the \$576.75 million Settlement Fund. The hearing date may change so please check the website. You or your own lawyer may appear and speak at the hearing at your own expense.

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OUT IN AFRICA

While gay rights are on the rise in the U.S., violent homophobia remains rampant in many African nations

By Aryn Baker/Kampala

AT THE ENTRANCE to a sprawling, open-air bar and restaurant in downtown Kampala, a large sign advertises what—six days out of seven—is on offer: MUSIC FOOD MASSAGE. Inside, prostitutes in tight tank tops and miniskirts lounge on plastic chairs under the shade of a mango tree, waiting for customers. But for one night each week, the prostitutes take a break and this place of heterosexual commerce becomes the closest thing Kampala—a city of 2 million and the capital of the East African nation of Uganda—has to a haven for gay people.

At the bar, Kampala's lesbians, gay men, bisexuals and transgender people gather over bottles of the local Club beer to soothe rattled nerves and take refuge in a place where strangers do not glare at them with hostility. When the bar closes a few hours after midnight, most will go home to closeted lives, hiding their sexual identity from family, friends and employers. "When you are gay, life in Uganda is not good at all," says transgender activist Joseph Kawesi as she knocks back her third bottle of Club. "When I go home, there is a boy who keeps shouting, 'You are gay, we are going to kill you.'"

Over the past decade, Ugandan tabloids have mounted repeated attacks on gay people in the country, outing prominent figures and calling for them to be killed. Following the February 2014 enactment of

a bill that allowed courts to sentence LGBT citizens to life in prison, the tabloid *Red Pepper* printed a list of "Uganda's Top 200 Homos." Those named were evicted, fired from their jobs and disowned by their families. The rise in anti-gay sentiment has many LGBT Ugandans despairing of ever being able to walk down the street without fear of being spat upon, cursed or even physically attacked. "This is not a life," says Kawesi. "This is existing despite the odds."

So it is across much of Africa. According to a 2013 report by the Pew Research Center, the vast majority of Africans—98% in Nigeria, 90% in Kenya and 96% in Uganda, Senegal and Ghana—say homosexuality is unacceptable. At a moment when a large majority of North Americans, Latin Americans and Europeans have come to accept homosexuality—and when same-sex marriage is legal in 20 countries, including the U.S. after a June Supreme Court decision—homophobia remains the norm in Africa, and may be getting worse. Thirty-four of 54 African nations currently criminalize homosexuality, with penalties ranging from a few years to life in prison or, in some cases, the death penalty. "Over the last five years, we have seen more laws being proposed and being passed into law in Africa," says Laura Carter, Amnesty International's adviser on sexual orientation and gender identity.



Kasha Jacqueline Nabagesera says she's been threatened with death for her work as an LGBT activist in Uganda

Religious conservatives may be losing the battle on LGBT rights in the West, but in Africa, where church and mosque remain cornerstones of society, some of the same anti-gay activists have been determined to hold ground, says Ty Cobb, global director of the Washington-based Human Rights Campaign, an LGBT-rights advocacy group. U.S. evangelicals, he adds, have sought to win in Africa the war that they lost at home. "We are seeing a lot of conservative American influence playing out in this debate." Many African politicians have come to see LGBT rights as an unwanted Western import, and they've responded by drafting anti-gay legislation even more draconian than the colonial-era sodomy laws that remain on the books in many African countries.

The cultural divide was highlighted during President Barack Obama's recent visit to Africa, where he raised the issue of gay rights with Kenyan President Uhuru Kenyatta, comparing anti-gay legislation to the laws that once justified slavery and segregation in the U.S. "I'm unequivocal on this," Obama said. "If somebody is a law-abiding citizen who is going about their business, and working in a job, and obeying the traffic signs and doing all the other things that good citizens are supposed to do, and not harming anybody—the idea that they are going to be treated differently or abused because of who they love is wrong."

Kenyatta's government has staunchly defended laws imposing up to 14 years in prison for homosexuality. Kenya and the U.S., he said, shared many values. Gay rights were not among them. "There are some things that we must admit we don't share—our culture, our societies don't accept," Kenyatta said. "It is very difficult for us to be able to impose on people that which they themselves do not accept."

NOWHERE IS THE TOXIC BREW of African conservatism, American evangelical influence and political gay-baiting more visible than in Uganda, where LGBT citizens fear for their lives. Kawesi, the baby-faced transgender activist in Kampala, still has nightmares about the night, 2½

years ago, when she says police officers dragged her out of her home after a tip-off that she might be gay. She says the officers beat her, then raped her with a club. Hospital records, friends and her lawyer attest to the physical damage, but Kawesi decided not to push for a prosecution of the officers she says assaulted her because she did not believe she would be able to prove their involvement in court.

For decades, Uganda's small LGBT community survived in the shadows, with the majority remaining closeted. Ugandan society at large tended to leave alone those they suspected of being gay, says lesbian activist Clare Byarugaba. That started changing in 2009, when conservative Ugandan pastors became concerned about what they saw as the growing influ-



Obama, left, clashed with Kenyatta on gay rights

ence of liberal Western values in Uganda and what they feared would be the accompanying acceptance of homosexuality. They invited a trio of American evangelicals to Kampala to lead a conference on what they termed family values and conduct a seminar titled "Exposing the Homosexuals' Agenda."

In the U.S., the three pastors—Scott Lively, Don Schmierer and Caleb Lee Brundidge—were members of a Christian movement that preached against homosexuality and promoted so-called gay-conversion therapy to what had become a rapidly dwindling audience. As the Massachusetts-based founder of Abiding Truth Ministries, a Christian organization hostile to homosexuality, Lively had spent nearly 20 years fighting what

he called the gay community's Marxist plot to break down the nuclear family model and destroy civilization.

Lively and his colleagues brought that message to Uganda, preaching at churches and visiting schools, community groups, even parliament. Their visit had the impact of "a nuclear bomb," as Lively wrote in a blog post in March 2009. LGBT Ugandans agreed. "All of a sudden [Ugandans] who had been O.K. with LGBT people before heard these lies and began to see us as a threat to children, to traditional marriage and to society," says Byarugaba, who sports a porcupine-like array of tiny, blond-tipped dreadlocks. She realized it was time to come out and take a stand when her church leaders asked her to sign a petition demanding the death penalty for LGBT people.

Six weeks after Lively's visit, Uganda's U.S.-educated Finance Minister David Bahati introduced a bill calling for the death penalty for gay people, even though colonial-era laws—rarely enforced—already banned homosexual sex. "The preexisting laws were not sufficient," says Minister for Ethics and Integrity Simon Lokodo, who is also a Catholic priest. "You had to catch someone in the act, which was very difficult. We had to improve the penal code, to address recruitment, promotion and exhibition of homosexuality."

Parliament debated Bahati's 2009 bill at various intervals and passed it in December 2013; a few months later, President Yoweri Museveni publicly signed the bill into law, declaring to a gathering of international journalists that homosexuality was an example of the West's "social imperialism." Lively, for all his boasts about the impact of his visit to Uganda, wrote in a 2010 statement that he was "mortified" that Bahati's Anti-Homosexuality Act included the death penalty, and he lobbied to have it changed. He declined to speak to TIME on the issue, but through his lawyer he disputed as "uncorroborated and self-serving" any evidence that suggests violence against LGBT Ugandans arose in the wake of his visit, or the subsequent implementation of the law. "Scott Lively



*Joseph Kawesi,
a transgender
woman and gay-
rights activist,
poses with her
mother Mai at
home in Kampala*

has continually and strongly condemned all violence against homosexuals,” writes his lawyer, Horatio G. Mihet, via email.

As the anti-homosexuality act worked its way through parliament, Uganda’s LGBT community decided to fight back. In 2012 the New York City-based Center for Constitutional Rights, a nonprofit legal advocacy organization, brought a civil case in a U.S. federal court in Boston against Lively on behalf of Sexual Minorities Uganda (SMUG), a Kampala-based LGBT advocacy group. The case argues that Lively violated international law through his “involvement in anti-gay efforts in Uganda, including his active participation in the conspiracy to strip away fundamental rights” from LGBT persons under the Alien Tort Statute, which gives survivors of human-rights abuses the ability to sue the perpetrators in the U.S.

The case, which is pending, may be difficult to prove, but the fact that it is being fought in the U.S. court system is itself a victory, says Diane Bakuraira, a SMUG activist. “It provides a check for those evangelicals who want to preach homophobia and lets them know that it is no longer acceptable,” she says. Lively’s lawyer, Mihet, argues that the case is unwarranted. “The notion that Africans cannot think for themselves and independently enact their own public policies on homosexuality is both racist and offensive. The sovereign people of Uganda, and their duly elected parliament, are responsible for Uganda’s laws and policies.”

UGANDA’S COURTS overturned the law in August 2014 on a technicality—there was no quorum the day it was passed in parliament—and many LGBT activists and political analysts privately say that it might have been a face-saving measure for the President to do away with a law that had brought on an international backlash. But the colonial-era law against same-sex practices is still in place, and now that overt homophobia has taken root in Ugandan society, each member of the LGBT community is a potential target. “Those evangelicals planted a bad seed,” says Hakim Semeebwr, a 26-year-old drag queen who goes by the name Bad Black. “The politicians watered it. Now that it has taken root, it can grow for years.”

Less than three months after the Anti-Homosexuality Act was overturned, a new bill was submitted to parliament in November 2014. It is tentatively being called the Prohibition of Promotion of Unnatural Sexual Practices Act, and, according to LGBT activists who have seen copies, it is even more draconian than the original act. “Promotion” in the context of the new bill includes publishing materials in support of Uganda’s LGBT community or even providing health care to LGBT citizens. “If you are homosexual, it is unfortunate,” says Minister Lokodo. “But to go out on the streets of Kampala and say, ‘I am gay,’ is the same as saying, ‘I am a thief or a murderer.’ It’s like handing yourself to the police for arrest.”

Uganda’s gay-rights activists say they will fight the new law as they fought the last one—through the courts, by raising awareness and by lobbying for international support. They are also hoping to find allies among more-liberal Ugandans who are disgusted by the ugly rhetoric that accompanied the introduction of the last law. Bakuraira notes that while most Ugandans publicly supported the

bill, many were shocked and alienated by the real-world repercussions.

The so-called kill-the-gays bill, as the Anti-Homosexuality Act was dubbed in the popular press, may have had the unintended consequence of bringing homosexuality out of the shadows and into the public, weakening long-existing taboos. “There is a discussion around homosexuality now that wouldn’t have happened without the anti-gay movement,” says activist Byarugaba. “It is no longer something people are afraid to talk about. They are saying, ‘Who are these people the government is focused on?’”

Those changing attitudes are a small spark in an otherwise dark reality for LGBT people in Uganda and throughout much of Africa. As public rhetoric mounts around the soon-to-be-proposed new anti-homosexuality bill, LGBT people in Uganda are bracing for a new spate of homophobic violence. And elsewhere in Africa, leaders have recently been openly hostile to gay rights: Kenya’s Deputy President William Ruto told a church congregation in May that there was “no room for gays” in the country. Gambian President Yahya Jammeh threatened to slit the throats of gay men the same week.

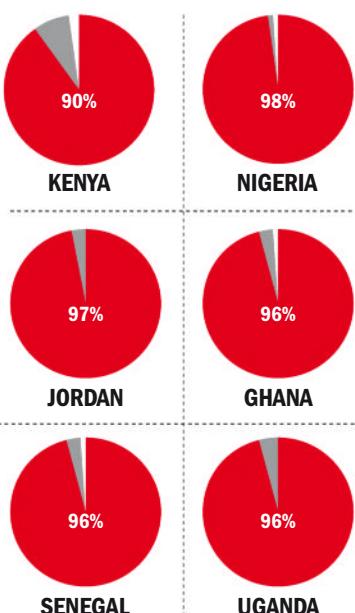
Nonetheless, lawyer Ladislaus Kiiza Rwakafuuzi, who has taken on many LGBT cases, believes that attitudes toward gays will eventually change, both in Uganda and in Africa, as they have in much of the rest of the world. “When something is in the public domain, it is no longer taboo. The more of these laws they bring, the more they are watering down the fear of homosexuality.”

Semeebwr, the drag queen, agrees that despite the danger, the constant exposure that came during the debate over the bill inadvertently helped the cause. “We didn’t want to be outed. It caused a lot of problems,” she says, noting that her own promising career as a male television presenter was cut short when one of the tabloids exposed her gender identity in December. “Ugandans, they had something in their heads that gays are sick, cursed, abnormal and not African. Now that we are out, they can’t deny we are Ugandan. They can’t deny that Africans can be homosexual too.” —With reporting by NAINA BAJEKAL/LONDON and ROBIN HAMMOND/KAMPALA

Hostile environment

Thirty-nine countries were polled by the Pew Research Center in 2013

■ DO NOT ACCEPT HOMOSEXUALITY
■ ACCEPT HOMOSEXUALITY





*Joanita Warry,
captain of the
Ugandan women's
rugby team, was outed
in the Ugandan press
in August 2014*



Virtual reality is nearly upon us.

So I tried every major and minor version out there.

Skeptics, take note: it's better than you think



INSIDE THE BOX

BY JOEL STEIN

Ken Birdwell, a Valve engineer, demonstrates the Vive virtual-reality headset, which can track a user's locomotion, head movements and hand gestures

PHOTOGRAPH BY GREGG SEGAL FOR TIME

PALMER LUCKEY ISN'T LIKE OTHER SILICON VALLEY NERDS.

He's a nerd all right, but not the kind who went to a top-ranked university, wrote brilliant code or studied business plans. He's cheery and talks in normal sentences that are easy to understand. He was homeschooled, and though he did drop out of college, it was California State University, Long Beach, where he was majoring not in computer science but in journalism. He prefers shorts, and his feet are black because he doesn't like wearing shoes, even outdoors. He doesn't look like a guy who played *Dungeons & Dragons* so much as a character in *Dungeons & Dragons*. He's a nerd from a different century, working on the problems of a different century. Palmer Luckey is a tinkerer.

If he had been one of those kids obsessed with Matchbox cars, we might have a flying car by now. But he was into video games and 1990s-era science fiction, so this year we will have virtual reality. As an 18-year-old who took apart smartphones and fixed them for cash, he figured out that the solutions to the problems virtual-reality engineers weren't able to solve were right inside his phone. Now 22, Luckey sold his company, Oculus VR, to Facebook last year for \$2.3 billion, allowing it to grow to more than 350 employees in offices in Silicon Valley, Seattle, Dallas and Austin as well as in South Korea and Japan. That's because, as fantastical as Luckey's dreams were—I want to feel like I'm really running down halls shooting bad guys!—Mark Zuckerberg and the rest of the tech industry had a much bigger hope for the sensory-immersion goggles Luckey used to carry around in a yellow bucket in order to hold loose wires. They had seen the Internet get disrupted by mobile and were wary of being blindsided by the next platform for accessing information—which they thought might be hiding in Luckey's yellow bucket.

"We were thinking about how this will affect our friends who are into gaming," says Oculus CEO Brendan Iribe, sitting in his company's building on the Facebook campus in Menlo Park, Calif. "Mark is always thinking about, How does this impact 1 billion people?" Luckey, who loved *The Matrix* and Neal Stephenson's virtual-reality thriller *Snow Crash*, understood Zuckerberg right away. "Could you call a book the final platform? Of course not. It's limited in the kind of stimulus it

supplies," Luckey says. "Virtual reality is the final platform." And while the first true virtual-reality machines won't start coming out until Christmas, a lot of people have already quit their jobs or funded projects in the belief that the final platform is here.

Virtual reality has been promised for decades, but in my conversations with the top developers in the field, it quickly became clear that never before have so much money and talent bet on its imminent arrival. Headsets will start going on sale this year, and competition will increase dramatically through 2016. At first they'll be bought by hardcore gamers and gadget geeks. They'll be expensive—as much as \$1,500 with all the accoutrements. And just as with cell phones, everyone else will mock the early adopters for mindlessly embracing unnecessary technology with no useful purpose. At first.

A GOOD PLACE to start that mocking would have been AT&T Park. In April, a group of virtual-reality entrepreneurs are wearing huge bright red plastic sunglasses, walking on the field where the San Francisco Giants play. Venture capitalist Mike Rothenberg, 30, rented the stadium so the 360 guests he's invited can see the 20 virtual-reality companies that his firm, Rothenberg Ventures, has funded. They can also take batting practice, drink cocktails, pet adoptable dogs and build their own goody bags.

For each VR demo, I put on a clunky pair of goggles, most of which have a smartphone slipped into a slot in front of my eyes, which does most of the work. These machines are not as complex as what Luckey developed, but they provide a cheap, effective rendition. The screen, when it's that close to your face, fills your field of vision—the first frameless visual medium. The sense of depth is far more realistic than 3-D, with everything stretching out to infinity, scaled perfectly. And I can look all around, whipping my head to see above, below and behind me, which gives me brief moments of what virtual-reality pioneers longingly call "presence"—when you really feel like you're inside a fake environment. It's an amazing technical achievement. I'm psyched I got to try it, but it's not something I'm going to choose over watching TV. The graphics are clunky, and I can see individual pixels, so I'm pretty far from fooled into thinking I'm not inside a ballpark. It's like the coolest version of the 1970s View-Master toy I could imagine.

It's also close enough to *The Matrix* to excite all these people. Xavier Palmer Ripoll has come from Spain to work for three months at Rothenberg Ventures' VR accelerator. He's created a bunch of animated situations that allow therapists to use immersion therapy with clients who have anxiety disorders, letting them virtually sit on a plane or ride in an elevator, for example. "They currently use imagination. They hold a picture of a plane, and they say, 'Imagine you're in a plane.' What the f---, man?" he asks.



Oculus founder Palmer Luckey with a prototype device at Facebook's headquarters in Menlo Park, Calif.

Everyone here is equally aghast that we're stuck in a pre-virtual-reality world: Ryan Holmes paid \$15,000 to put a camera on the International Space Station so he can one day charge people \$10 a month to see space in virtual reality; Ashley Granata is creating Pendnt, which allows people to try on clothing virtually; Howard Rose had me use a joystick to shoot VR balls hanging from VR landscapes to distract me from the pain of having my free hand submerged in ice-cold water.

On the deck of the stadium, wearing a Founder Field Day baseball jersey and sunglasses, Rothenberg says his firm has already secured enough money to invest in a second round of virtual-reality companies this fall. "It's hard for people to write checks for virtual reality until they try it. Then, not that hard," he says. He likens this opportunity to the Internet in 1995. "No one calls a company an 'Internet company' anymore. In 10 years, everyone will have VR as part of their company."

It's already starting. Lately, I've been bombarded by virtual reality. At a party in Los Angeles in May, Patrón launched a virtual tour of the hacienda in Mexico where its agave is distilled. Birchbox announced that this month its men's subscription box will include a virtual-reality viewer and app allowing its subscribers to surf or fly a helicopter. And at North Face stores, you can see virtual video of dudes

climbing a rock face in the company's gear. James Blaha, a game developer with severe lazy eye—a condition that affects about 2% to 3% of the world's population—has used virtual reality to basically cure the disease in 30-minute sessions over three to four weeks; he's sold 1,000 copies of the system to optometrists already. And Hollywood is putting nearly as much money as Silicon Valley into the concept.

Nearly every week, there's a virtual-reality convention. Standing in line with 1,500 other people for the sold-out Virtual Reality Los Angeles spring expo in March to visit the booths of more than 50 companies, I am asked to sign a contract. It is not, like other tech releases, about me not telling anyone about anything I saw or thought I might have seen here. Instead, it says, "I am aware that some people experience nausea, disorientation, motion sickness, general discomfort, headaches or other health issues when experiencing virtual reality." The final platform is not making a great first impression.

Luckily, I don't barf. The nausea caused by virtual reality is the inverse of car sickness: your eyes see motion but your middle ear feels nothing. This challenge has largely been solved by faster screen-refresh rates—the final version of Oculus will allow only 20 milliseconds between a head turn and visual change; an eyeblink takes about 300 milliseconds. VR companies are also shying away from putting viewers on

The view from inside the goggles

virtual roller coasters and Formula One tracks. But they are creating everything else. In a speech in a packed auditorium, Jens Christensen, CEO of Jaunt, which makes high-end VR cameras, says building actual flying cars and jet packs is now irrelevant. The only question, he says, is how soon we can “simulate our own personal Tomorrowlands.”

TWO MONTHS after Facebook paid \$2 billion for Oculus, Google responded at its annual I/O conference in San Francisco’s Moscone Center by handing each of the audience members a piece of flat cardboard as they left the keynote presentation. This, they were told, when folded up and paired with a smartphone, was Google’s new virtual-reality player. Most people thought it was a joke. But with two cheap plastic magnifying lenses placed in a box that cradles your phone, it can create a 3-D effect not unlike that of much more expensive equipment. At the Googleplex, Clay Bavor, vice president of product management, shows me the second generation of Google Cardboard. “The delta between expectation and delivery is so high,” says Bavor. “It’s cardboard—how good can it be? And then it’s like, ‘Whoa! I’m sitting somewhere else!’”

In 1994, when Bavor was 12, he used the HyperCard program on his Apple computer to stitch together hundreds of photos of his house in his first attempt at VR. Google’s version of virtual reality isn’t that much more cutting edge. “It’s going to be a long, long time before anywhere near that many people have these high-end devices,” says Bavor. So for now, you can do a lot of low-tech virtual-reality stuff with Google Cardboard. Google doesn’t bother making money off Cardboard—the specs are free online, and many companies sell them for \$6 and up—but the company is making software for it.

You can download an app made by Jaunt and get a good sense of what it’s like to be backstage at a Paul McCartney concert. Google teamed up with GoPro to make a wheel of 16 cameras that shoots 360-degree video and created software that allows you to stitch the shots together into a video you can then upload to the new virtual-reality section of YouTube. Through a program called Expeditions, Google has already sent 100 classrooms a field trip in a box; teachers use Cardboards to lead kids through natural, architectural and Martian wonders. The company worked with partners like the Smithsonian and the American Museum of Natural History to create 3-D images not unlike those in the plastic viewfinders that were popular in the 1970s. This comparison isn’t lost on Google, which has a deal with Mattel to put out a version of Google Cardboard in a View-Master.

Oculus has also entered the mobile space, since it isn’t planning to release its main product, the Rift, until 2016. (“If the iPhone were introduced in any quarter, it would have been a hit. I doubt they were saying, ‘What’s important for the iPhone? We have



➤ Microsoft’s HoloLens projects holographic images onto the real world through a transparent visor worn on your head. **Users can gesture to control digital interfaces** like scrolling through web pages, resizing videos and playing tabletop video games.



➤ The Vive, developed by gaming firm Valve and Taiwanese phone giant HTC, uses **infrared sensors and specially designed controllers** to allow users to move around the virtual world and manipulate objects like the kitchen tools in this cooking simulator.



➤ **Designers are still trying to figure out which types of 3-D games translate well into virtual reality.** Lucky’s Tale, created for the Oculus Rift, is an action adventure similar to the Mario games for Nintendo devices.

to hit Christmas," says Luckey about letting his competition beat him to market.) Oculus partnered with Samsung to build Gear VR, a pair of goggles with motion detectors that you can slip a Galaxy Note 4 phone into. The device is available at Best Buy for \$200 and is lent to first-class passengers on Qantas.

Three high-end virtual-reality products not made of cardboard are being put out by Oculus, Sony and Valve. The latter two companies have an advantage in that their gamer customers already own machines with powerful graphics capabilities. Founded by former Microsoft developers, Valve makes popular games and runs the Steam download store, which sells about three-quarters of all PC games.

As I walk into one of the rooms used for demonstrating the company's Vive headset, scheduled to be released this Christmas, I see Steve Jurvetson, one of the most powerful Silicon Valley venture capitalists, walking out of the other one. Valve gives several demonstrations a day. "We won't talk to people until they have a demo," says Ken Birdwell, a longtime employee. "If we talked to them before, it would just be arguments about why these things wouldn't work. After, they say, 'We have to hurry. We have six months until this hits the consumer space.'" When they agreed to show their technology to an employee of Taiwanese smartphone manufacturer HTC, they were surprised when she turned out to be Cher Wang, who runs the company. After seeing it, Wang asked if HTC could manufacture the product for Valve, which it is now doing.

Unlike Google Cardboard or anything else you can buy right now, the Vive requires you to hook it up to a computer fast enough for gaming. And for you to be physically attached to that computer with a wire. And to strap on a pouch. And to put little laser sensors in the corners of the room. In return, you can get out of your chair and unvirtually walk around the virtual world you see through the Vive goggles.

This would seem dangerous. But the headset alerts you when you're near a wall. It would also seem to require you to have a 16-by-12-ft. (5 by 4 m) empty room in your house. Jeep Barnett, who has worked on the project from the beginning, isn't worried. "Sell your dining-room table and eat over your sink," he says. "If you have a pool table, get rid of that. Get a Murphy bed. People are going to find a space. You have a space for your car because you have to have the superpower of getting downtown in 20 minutes."

They strap the Vive goggles and pack on me, put a controller in each of my hands and bring up the menu. I instantly understand virtual reality. At the press of a button, I inflate and release a cartoon balloon in the air, and it floats into the infinite black sky. This is just to make sure the controllers work, so they want me to move on, but I keep doing it. The sense of scale is like seeing the night sky for the first time in a national park:

peaceful, awesome, meditative. I feel like I have disappeared.

Eventually, I try their games, pulling an arrow from a quiver and shooting it, feeling the tension of the bow thanks to the specifically designed VR controllers' haptic feedback, which is much more subtle than the vibrations of a typical game controller. I crawl underneath game pieces in a live board game where tiny fighters shoot each other. And in the most impressive virtual-reality experience I have, I use a program called Tilt Brush (since purchased by Google, which has a bunch of high-end virtual-reality projects it's keeping quiet) to paint in three dimensions. Walking around dripping neon, I paint in the sky in a way that makes me never need to try LSD.

I take the goggles off, making what people call "VR face," the geek version of "O face." Birdwell says, "You're seeing the *Pong* version. These are early, early days." Every program I saw used graphics instead of real video, which still looks like crap; this is why virtual reality might be the first technology not successfully pioneered by the porn industry. (Though a lot of companies are trying VR erotica.)

Sony's Project Morpheus, which will be available next year, is similar. Because 20 million people own the Sony PlayStation 4—which has the controller, tracking camera and powerful gaming chips that Oculus and Valve users will need—it's got a huge advantage. As with the Oculus, Sony doesn't expect you to walk around like you do with the Vive but just to move around on your couch.

In a room at E3, the video-game industry's giant annual convention in Los Angeles (the Oculus offices have a clock that counts down to it), I slip on a light, sleek, ready-to-ship Morpheus headset that plugs into the PlayStation 4 and has a button that lets you extend the glasses out so you can check your phone or sip a drink. In one demo, from a company called VirZOOM, I sit on a stationary bike to feel like I'm riding a horse (and later a Pegasus) while I work out. The company was co-founded by Eric Malafeew, who quit a developer job at Harmonix, where he made *Guitar Hero* and *Rock Band*. Large game companies are now losing engineers who are eager to play with virtual reality while they wait until enough people own headsets to make it a decent business proposition.

Richard Marks, a senior researcher at Sony, says that in the past few months it has gotten the hardware far enough along that the software will now matter more. Already, he says, what game designers call "talent amplification" is more impressive than he imagined. "I can point at something and have the force and levitate it, and it really feels like I'm doing it. When you play a game, you say, 'I died.' But in virtual reality, man, it's even more powerful." I try a few more games before I'm ushered out so they can clear the room for a VIP. As I walk out, Steven Spielberg walks in.

**'YOU'RE
SEEING
THE PONG
VERSION.
THESE ARE
EARLY, EARLY
DAYS.'**

KEN BIRDWELL, of gaming company Valve

At the Oculus building on the Facebook campus, I have a transcendent virtual-reality experience while using the latest version of the Rift. Palmer Luckey, whose real name is Palmer Luckey, wears flip-flops today instead of going barefoot, out of respect for our meeting. People here are so comfortable with VR that they refer to things outside of virtual reality—what most people call “life”—as RR, or real reality. A team of directors and writers led by Saschka Unseld left Pixar and DreamWorks to work at Oculus Story Studio, a 10-person team making short movies like *Henry*, the story of an adorable hedgehog with a hugging addiction. Oculus can’t spend the money in-house fast enough: it offered a total of \$1 million for the winners of its gaming competition, the Mobile VR Jam.

Just four years ago, an 18-year-old Luckey had amassed a personal museum of old VR gear. “I had one system that was originally \$97,000. I bought it [used] for \$80,” he says.

So he got two eyeglass lenses, duct-taped them over a phone, shoved the equipment that was too heavy to fit on someone’s head into a bucket and drove from his parents’ house to tech shows, draping a black T-shirt over users’ heads to block their peripheral vision. Soon John Carmack—the gaming legend who popularized the first-person perspective—asked to buy one. Luckey, out of respect, refused to charge him. Carmack was so impressed, he quit the multimillion-dollar company he’d founded—aware it would sue him for leaving—to work for a homeschooled teen. In 2012, Luckey tried to raise \$250,000 on Kickstarter and got \$2.4 million. “It was nice to find out I wasn’t the only nutter,” he says.

The version Oculus plans to sell next year will be a niche product for gamers, not a mass-market device. To get to that level there are still kinks to work out, including a screen that is 32,000 pixels by 32,000 pixels, instead of the current 1,000 by 1,000; a way to power that screen, preferably with smaller batteries that don’t get so hot they’ll burn your face; a way to make the parts directly in front of your eye super-clear, as in real reality; scent and touch; a camera that shoots virtual video. That last one, Palmer says, will be huge—the way that photographs and then video changed the way we record history.

Already, at E3, Oculus showed some impressive demos. Sure, it had a game where I was an NHL goalie that was fun and another wonderfully vertigo-inducing flight simulator where I flew a spaceship fighting some vaguely Death Star-like enemy, but the coolest thing by far was something it’s not even planning on selling: *Toy Box*. I held thin black plastic circle-shaped controllers called Oculus Touch, put on the goggles and saw the vague figure of a guy who was really in a room next door. While we spoke, I used my fist to play tetherball with him and flicked foam

blocks at him with my finger. He shot me with a laser to make me tiny. We even hugged, and my personal space felt virtually invaded. He had my attention in a way that no one on a phone or Skype call ever has. And not just because he had a gun that could reduce me to Ant-Man.

EVERYONE WORKING ON virtual reality knows that even after they manage to make goggles the size of sunglasses, as Zuckerberg keeps promising, the technology will merge with augmented reality, which is the new term for holograms. Seeing fake things overlaid on the real world makes a lot more sense, since you’d get to see all the real world’s inconvenient walls. But holograms are an amazingly hard thing to do. Nobody at any of the VR expos even bothers to give speeches about it. The Oculus guys figure that maybe their kids will work it out. “We started on augmented reality,” says Valve’s Birdman. “There are hard physics problems. You can’t get a wide field of view. You can’t draw a shadow. There are power and battery problems. When it happens, I’ll buy it.”

Underneath the most well-trodden spot on Microsoft’s Redmond, Wash., campus is the secret bunker where it makes holograms. The company is trying to jump from behind Silicon Valley to get in front of it. So it’s skipping virtual reality before it even comes out and selling augmented reality. The lab looks like the place a *James Bond* villain would work in if he hired interior designers from the W Hotel and lighting experts from Virgin America. Everyone here is futuristically calm. A huge man who is not a bouncer but an engineer silently lets me in and points me to a bench where a woman named N stands in front of me, demoing how to wear Microsoft’s HoloLens goggles. They are beautiful and comfortable and weigh about a pound. No wires tether me to a computer, thanks to a Holographic Processor Unit built into the gadget next to the central processing unit and graphics processor. I don’t need to carry a smartphone, strap a pack around my waist or hook laser sensors to a wall. And I can see out the clear visor perfectly.

Alex Kipman is in charge of the bunker, having overseen Microsoft Kinect, the Xbox add-on that allowed people to control what happens onscreen by waving their hands and using their voices, like in *Minority Report*. When the first version of Kinect was released five years ago, it was the coolest thing Microsoft had ever made. Kipman is also cool. He’s got a Brazilian accent and dresses like a man who takes Burning Man seriously: shiny gray pants; a long jacket with embroidery; blunt, shoulder-length hair.

“If I told people at Microsoft I wanted to make virtual reality, they would have nodded their head yes,” he says. But Kipman wants to save us from spending yet more time on our computers instead of with one another. “Virtual reality is not embracing that which makes us human. Kinect was about embracing

‘IT WAS NICE TO FIND OUT I WASN’T THE ONLY NUTTER.’

PALMER LUCKEY, on Oculus’ \$2.4 million Kickstarter campaign



Microsoft's Alex Kipman with a prototype of HoloLens, the company's augmented-reality headset

what's in all of us. Humans exist in the real world. Holograms say, 'Hey, technology has become sophisticated enough today that we're ready to go beyond being stuck behind pixels all day long.' Holograms, he believes, will reverse our isolation and inactivity.

HoloLens is not a pet project for Microsoft. It's an integral part of Windows 10, its major new operating system released in July. To see it, I am led to well-lit rooms where I get to do amazing, sci-fi-level things. I look at a real table holding a holographic architectural model of an office complex; I move my hand to raise and lower parts of the building, or zoom in on a wall and look at the pipes behind it. At E3, I get to project *Minecraft* on a real table, zooming in on another player running up a tower faster than he ever could with a keyboard; I torment him by flicking my finger and verbally calling in lightning strikes.

As amazing as this is—I am moving around holograms with my hand and voice—it still looks fuzzy, like something went wrong with R2-D2's message from Princess Leia. It all has to fit on this rectangle in front of my eyes, and the small field of vision makes it seem like it's on a screen instead of being real. It's impressive—and the hardware and packaging are way ahead of those of Oculus and Valve—but holograms just don't seem real yet. As I leave, Kipman

asks me how much I think the HoloLens will cost.

"Assuming there are apps I want, \$250," I say.

Kipman looks at me. "You know there's a computer in there?"

"\$350?" I suggest.

"Thank you for your honesty," he says.

Still, HoloLens is a convincing proof of concept. And Kipman's pro-hologram, anti-virtual-reality logic seems incontrovertible. "The amount of data and signal you get for free from the real world is massive," he says. "You already know how to walk around and communicate." But Palmer Luckey thinks holograms will never be a platform. "Augmented reality is well suited for utility purposes," he says. "Look at science fiction. Most uses of AR are how to repair things, navigation aids, more information about the environment. But there's no proof it can be a canvas for compelling storytelling."

THE GUYS WORKING ON virtual reality since the 1980s hadn't all stopped by the time Luckey began buying their old models for his collection. Mark Bolas, a professor at the University of Southern California both in the film school and at his Institute of Creative Technologies, open-sourced his design for the very Cardboard-like FOV2GO in 2012, which



thousands of people downloaded so they could have a \$5 homemade virtual-reality headset. And Luckey worked in Bolas' lab for a year before Bolas suggested he start Oculus, in which Bolas was an early investor. "He was the right guy to bring it out," says Bolas. "He had the charisma."

Bolas, who has puffy white hair and types on a computer keyboard raised by six unwrapped blank VHS tapes, works out of a huge Los Angeles warehouse that has an enormous room with tiny tracking cameras hanging along the periphery. He cannot wait to start making virtual-reality worlds, which he thinks will save us. He has no fears about humanity being sucked into the Matrix. "I believe we're in the virtual world now more than the real world already. It's just that our interface sucks," he says, pointing to his phone. Just as early Industrial Revolution machines killed people, he thinks, our computers are killing a part of us. "We're in that barbaric place where the interfaces to the machines don't consider the human side," he says.

He's been building virtual-reality worlds with stop-motion Claymation, trying to get at the interactive, world-bending experiences VR can offer. Because, unlike movies, virtual reality can make you feel dumb or successful by reacting to you. "Presence has to go both ways. The world has to acknowl-

edge that you're in it," he says. "This is what I have film students for. To figure out what I do with this."

Now that the hardware can be made at a price for the consumer market, a lot of people are trying to figure that out. Both Oculus and Valve pretty quickly got that the storytelling rules of video games don't work. Like Luckey, Valve employees also initially thought, I want to feel like I'm really running down halls shooting bad guys! But they quickly discovered they did not want that at all. One of the first things they created was a zombie game where you mow down bad guys. "We noticed that everyone would move as far away from a zombie as they could. One zombie! And it was barely moving. It was like a statue of a zombie. The terror level of a single zombie was ridiculous," Birdman says. "But now I have all these emotional cues I've never been able to use before. It's what makes this terrifying and exciting at the same time."

Jeremy Bailenson has been thinking about these problems since he founded Stanford's Virtual Human Interaction Lab in 2003. He has a suite of offices in the communications department, which, until recently, was one of the few places in the world to try real virtual reality, because a system used to cost \$100,000. He runs psychological experiments where people become aged versions of themselves to help

Google engineer Clay Bavor looks through Cardboard, the search giant's low-cost, DIY virtual-reality headset

them save for retirement; in a video on how to deal with harassment, the user can become a young black woman being interviewed by an old white guy. After people fly like a superhero and deliver medicine to a sick child, they are more helpful when an assistant pretends to accidentally drop her stuff in the hallway.

Bailenson doesn't think that his life's work is the final platform. He thinks people will get hurt walking into walls or when a dog darts across the room. He thinks the glasses will never be comfortable to wear for long periods. And that an all-virtual world is creepy. "I'm actually a Luddite. I don't play video games. I don't have a Facebook account," he says. At the Tribeca Film Festival's symposium on virtual reality this year, he warned the audience against making entertainment for virtual reality. "Do you want to be in the trash compactor in *Star Wars*? No, you don't. If *Jaws* felt like what you just did in my lab, no one would ever go in the ocean again." VR, he believes, is an empathy machine and should be saved for that purpose.

Felix Lajeunesse and Paul Raphael totally agree with everything Bailenson says and are making virtual-reality entertainment anyway. In their 20-person ministudio in Montreal, they've built their own camera to capture video: it's the size of a seated person, with a battery for a body, two cameras for eyes and four sets of molded ears for microphones. They use the camera to allow viewers to slowly explore a place. They're documenting nomadic tribes around the world so you can sit in a Mongolian yurt while a family cooks. When they showed Oculus what they were working on, they feared the company would think it was dumb. Instead, Oculus gave them money to make films for its own studio. "You can be slow in virtual reality and lose fewer people. In fact, they prefer it," says Raphael. Universal Pictures hired them to make an experience tied to *Jurassic World* to show at festivals, and they made the single longest dinosaur shot in history. Because, they knew, it's plenty interesting to look at a dinosaur.

But when Raphael showed virtual reality to director James Cameron—the technology-pushing creator of *Avatar*, *Titanic* and *Terminator*—in May 2013, Cameron stated that he had no use for it. "This has very little to do with controlling the viewers' attention," says Lajeunesse. "It's not necessarily a medium for filmmakers." He and Raphael have mostly been hiring painters, photographers and stage directors. Chris Milk, a music-video director whose interactive installations have been shown at MOMA and the Tate galleries, believes VR, like all media before it, is for storytelling. He's built his own VR camera to let him get closer to his subjects, who include a 12-year-old Syrian refugee and a Liberian Ebola survivor. "There's something about sitting on the same ground someone else is sitting on that changes the way your brain registers their humanity," he says.

Commercial director Jonnie Ross met Palmer Luckey at a convention. After using the Oculus Rift that day, Ross quit his job and called his friend Gil Baron, a visual-effects supervisor. "He was talking fast," says Baron. "Like that moment in *Back to the Future* where Marvin Berry calls Chuck Berry to tell him what he just heard." Baron quit too, and they now work at Visionary VR in downtown Los Angeles. They're trying to figure out how to tell a story in virtual reality. "It's like you went back in time and gave a caveman a video camera," Baron says. To make their animated short, they developed editing software that involves holding two controllers and seeing those controllers in virtual reality as you move elements on the screen. It's incredibly intuitive. But, they both say, figuring out how to tell a story in virtual reality—first person? choose your own adventure? scene cuts?—is not.

Jaron Lanier, who in 1984 founded VPL Research, the first company to widely sell VR products, and is credited with, depending on whom you ask, either creating or popularizing the term *virtual reality*, is pretty sure they're all as wrong as the directors of the first movies, who just filmed stage performances. Virtual reality, he says, is a means of spontaneous, improvisational visual expression, the same way that talking is a means of aural communication; it's the next logical step from written language to printing press to photograph to audio recording to film. "It can blur the distinction between you and the rest of the world. You have the option to map yourself to the clouds or the grass. When you move your body, all the clouds and animals can move in sync with you," he says. "In about a year or two, nobody will find this hard to understand. This will become totally ordinary." And Lanier, author of the 2011 critique of digital culture *You Are Not a Gadget*, can't wait. "In the 1980s, this was a really big deal. I was in my 20s. It wasn't at all clear I'd live long enough to see it cycled back again."

Maybe virtual reality will be a radical new form of expression. Maybe it will just be for short, immersive, therapeutic experiences. Or maybe it's just another entertainment medium to accompany theater, painting, print, music and film. In the Oculus office, an executive showed me a game called *Keep Talking and Nobody Explodes*. It's a three-player game, and before we opened the office door to look for someone to join us, Palmer Luckey noticed what we were doing and sat down. I put on the goggles and described the bomb I saw. Luckey sat in the physical world next to me, excitedly flipping through an instruction book, telling me which wires to snip. I had no idea what virtual reality added to this game. But Luckey couldn't have been more into it, instinctively racing against the clock. He was determined to figure it out. □

'IF JAWS FELT LIKE WHAT YOU JUST DID IN MY LAB, NO ONE WOULD GO IN THE OCEAN AGAIN.'

JEREMY BAILENSEN, founder of Stanford's Virtual Human Interaction Lab

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Time Off

'HOW WRONG IS IT THAT MINNIE IS A MINOR ... THAT MINNIE REALLY DIGS SEX? LET A THOUSAND OP-ED ESSAYS BLOOM' —PAGE 57



President Obama made his seventh Daily Show appearance the week before Stewart signed off

TELEVISION

After 16 years, Jon Stewart's term as voice of reason comes to an end

By James Poniewozik

OF ALL THE WAYS THAT I'LL MISS *The Daily Show* host Jon Stewart—as comedian, truth teller, BS caller—above all I will miss him as a media filter. I don't mean media filter in the usual sense of someone who takes in a great deal of news, scans over it and highlights those bits most worthy of your attention. I mean a filter like you find in a pool or a sewage-treatment plant, or your bloodstream: something that absorbs a torrent filled with toxins—in this case, politics, punditry and sensationalism—and passes it through in a form that you can safely tolerate.

In the body of American civil discourse, Jon Stewart was our liver.

And 16 years was a pretty good run for a liver, considering how many shots of high-proof bad faith and

doublespeak our culture knocks back on a daily basis. Granted, this was a burden Stewart chose for himself. The *Daily Show* he inherited from Craig Kilborn was more innocuous, a product of the it's-all-good '90s, less a commentary on the news than a parody of the phoniness of news shows. Stewart, with his team of writers and producers, discovered that they could use the show to pick apart not just the format of the news but also its content and the way it was presented.

Stewart debuted in January 1999, the year that the online self-publishing platform Blogger would debut, and his *Daily Show* was a kind of blog of the cableverse: it fed off primary sources but added value, not just by lampooning the soapboxing of public figures but by diagramming

the construction of the soapbox. The prototypical, heavily researched *Daily Show* takedown—say, a montage showing how Fox News' conservative pundits fed off controversies fanned by the channel's own news shows—was essentially a high-production version of “fisking,” the blogosphere practice of dismantling a mainstream-media narrative point by point.

The common narrative holds that Stewart's *Daily Show* hit another level and got seriously funny (or hilariously serious) after 9/11. Certainly Stewart had one of the most memorable responses. He pre-emptively mocked his own response: “It’s another entertainment show beginning with the overwrought speech of a shaken host.” He tweaked and echoed the sense of shock and siege: “There were no jobs available for a man in the fetal position under his desk crying.” Then he shared a nugget of hope: the view from his apartment had been the World Trade Center, but now it was the Statue of Liberty. “You can’t beat that,” he said.

But the events that truly defined Stewart's era may have come both before and after 9/11. First, there was the *Bush v. Gore* debacle of 2000 (the show covered it with the rubric COURTING DISASTER), which turned an agreed-on given of democracy—who is the rightfully elected President?—into a source of endless recrimination and fuel for the argument engine of cable news. And after 9/11 came the invasion of Iraq—“Mess O’Potamia,” as the show branded it—in which Stewart and his writers found their acerbic voice, puncturing the certitude of media hawks and playing syncopated counterpoint to the drums of war.

Maybe you didn't have to be a liberal to like Stewart, but it became plain enough he was one, well before it emerged that he had been called to the White House for tête-à-têtes with President Obama. (Stewart, of course, mocked the breathless Politico report of the “secret,” yet publicly logged, meetings under the rubric WHEN BARRY MET SILLY.) But Stewart's real driving ideology was reasonableness, the idea that not every disagreement had to be Armageddon. His approach to the media was not so much to kill the messenger as to tell the messenger: You're

A Daily dozen of Jon Stewart's best moments

JAN. 11, 1999

Stewart hosts his first *Daily Show* episode, with guest **Michael J. Fox**. Correspondent Stephen Colbert reports on merchandise inspired by Bill Clinton's ongoing impeachment trial.



JULY 17, 1999

Comedy Central announces that *The Daily Show* will helm the network's “Indecision 2000” presidential-race coverage. The show's commentary on the election wins a Peabody Award.

SEPT. 20, 2001

Stewart shows his earnest side, abandoning satire in his **first show after 9/11**. He memorably opens the program by asking viewers,

“Are you O.K.? We pray that you are, and that your family is.”

NOV. 7, 2005

Barack Obama first appears on the show via satellite, as a U.S. Senator from Illinois. He is a guest six more times, as a Senator, presidential candidate and President.



OCT. 15, 2004

Stewart drops by CNN's *Crossfire* to promote *America (The Book)*. He winds up excoriating hosts Tucker Carlson and Paul Begala for failing to provide useful public discourse. He implores them to **“Stop hurting America.”**

NOV. 4, 2001

The Daily Show wins its **first of 20 Emmys**, for Outstanding Writing for a Variety or Music Program.



MARCH 12, 2009

Stewart interviews **Mad Money host Jim Cramer** about the financial crisis and accuses him of shoddy reporting. Cramer defends himself but says, “We all should have seen it more.”



OCT. 30, 2010

Stewart and Colbert host the **Rally to Restore Sanity and/or Fear** on the National Mall, with more than 200,000 in attendance.



FEB. 23, 2011

Stewart interviews **Donald Rumsfeld** about the Iraq War, beginning the conversation with two words: **“Apology accepted.”**

AUG. 6, 2015

Stewart hosts his final episode before passing the reins to South African comedian **Trevor Noah**, who is set to take over on Sept. 28.



FEB. 10, 2015

Stewart announces his forthcoming retirement: **“In my heart I know it is time for someone else to have that opportunity.”**

JUNE 10, 2013

John Oliver steps in as host of *The Daily Show* for the summer (32 episodes), as Stewart takes a 12-week break to direct his feature-film debut, *Rosewater*, about a journalist imprisoned in Iran.

killing us. "Stop hurting America," he begged the hosts of CNN's *Crossfire* in a legendary 2004 appearance.

Stewart did care about things, passionately and profanely, whether it was shaming Congress into passing a bill to aid 9/11 first responders or telling Fox News, "Go f--- yourself," with the help of a gospel choir. But by nature he was a wincing, not a shouting. In 2010, with protégé Stephen Colbert, he held the Rally to Restore Sanity and/or Fear in D.C., a demonstration devoted to the idea that reasonable people could disagree.

Guess what? People disagreed—including progressives like Rachel Maddow, who accused Stewart of promoting "false equivalence" between left and right media. There were always those who wanted Stewart to be angrier. (His anger, reportedly, could come out behind the scenes. Wyatt Cenac, once one of *The Daily Show*'s only black writers and correspondents, contended in a podcast interview that Stewart blew up at him in a meeting after Cenac complained that Stewart's imitation of Republican candidate Herman Cain reminded him of the racist caricature Kingfish from *Amos 'n' Andy*.)

There are no term limits on voices of reason, but with another presidency ending—and Colbert retiring his eagle and decamping to CBS—it feels time. *The Daily Show*'s political-comedy successors will owe a lot to Stewart, not least because so many of them worked on his show. But the cultural momentum is with the likes of former understudy John Oliver, whose polymath essay-rants on HBO's *Last Week Tonight* take sides fervently and often end with calls to action, not moments of Zen. Stewart's replacement, Trevor Noah, is known for lacerating stand-up on racism and has already promised a show that will respond less to cable news than to the immense, endless outrage cycle online.

Stewart's time as filter is ending, but the torrent spews on. As if in a cruel taunt, God and Fox News scheduled the first Republican debate—likely to feature Donald Trump—the same night he leaves the air. And his heirs will serve an audience who want video clips of their hosts "destroying" and "eviscerating" their targets more than wry appeals to comity. That was Zen; this is now.

QUICK TALK

Janeane Garofalo

The veteran comedian stars in Wet Hot American Summer: First Day of Camp, an eight-episode series now streaming on Netflix that is a prequel to the 2001 film with a cult following. —NOLAN FEENEY

Are you a big Netflix binge watcher? I don't use a computer, nor do I have a smartphone. I know you don't believe that. Many people can't believe it. People will believe in a deity, extraterrestrial ghosts, but this one thing they can't believe. I'm a bit of a neo-Luddite.

Some of your returning castmates—Paul Rudd, Bradley Cooper, Amy Poehler—have become huge stars since 2001. What's it like watching their careers?

Well, I thought Paul Rudd was really famous, to tell you the truth, from *Clueless*. I think it's thrilling. It couldn't have happened to nicer and more deserving people. Bradley is a fantastic guy and works really hard, as does Amy. Their work ethics are ridiculous.

You've said that you were drunk while filming most of the original movie.

What was the vibe like this time?

It was the opposite of that! We were shooting in L.A., whereas last time, we were in Pennsylvania and stayed at the camp the entire time. You had a bunch of younger people who were still drinking heavily and having the time of their lives. This time, even though it was very fun, you had people who were sober, commuting to work, with families and not bed-hopping.

You're known for your politics as well as your comedy. Will the 2016 race give comedians good material?

There's always something to discuss. The problem is when it becomes too tragic, when certain right-wing nonsense is actually culturally criminal: the anti-immigrant stuff, the Donald Trump nonsense. Yes, we can laugh at Donald Trump. But when prideful ignorance and homophobia and misogyny and xenophobia become accepted political rhetoric, that's not funny to me.

ON MY RADAR

FATHER JOHN MISTY, I LOVE YOU, HONEYBEAR

'He's hilarious. The whole pullout that comes in the CD—the artwork and all these notes and the lyrics written out—it's fascinating.'

INSIDE AMY SCHUMER

'The thing I thought was amazing was the 12 Angry Men remake. It's so good, so well done and so funny.'



BOOKS

The guns of August—and what came after

LOUIS DE BERNIÈRES'S NEW NOVEL, *THE DUST THAT FALLS From Dreams*, is about World War I, but you might remember him from his 1994 best seller about the Great War's sequel. Part of the charm of Corelli's *Mandolin*, de Bernières's tale of an Italian captain who occupies an out-of-the-way Greek island during World War II, was as tourist attraction: as theaters of conflict go, Cephalonia was pretty far off the beaten track. With *Dust*, the author drops us right in the trenches, and he shies away from no gruesome detail. But he does it with a delicate touch, weaving a gently evocative story of the war that didn't end all wars but did wrench open the door to the modern world.

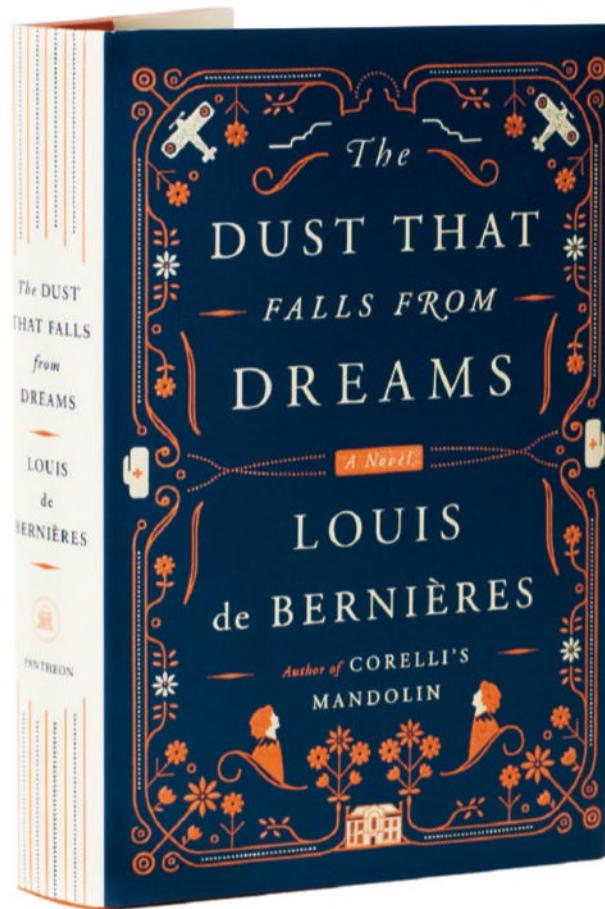
In Eltham, outside London, in a nation mourning its long-lived Queen as it crowns a new King, live three families with happy children: the four McCosh sisters, led by pretty Rosie; her sweetheart Ashbridge Pendennis and his two brothers; and the two neighboring Pitt boys, half-French and all mischief. The Edwardian years of their youth form a pastoral prelude to the novel's action, a time of prosperity verging on complacency:

One summer succeeded another, each, it seemed, hotter and more glorious than the one before. The roses thrived in the clay of the beds, the apples grew juicy and generous, and wasp traps made of jam and beer were set up in the boughs.

When the Kaiser invades France and Belgium, the boys sign up, and all hell breaks loose—not an overstatement. Because de Bernières writes in brief chapters narrated from multiple points of view, we have virtually every perspective on the violence, from Ash's diary entries about life and lice in the trenches to Daniel Pitt's accounts of his daredevil Sopwith Camel sorties over France to Rosie's haunting experience as a VAD in a Southampton military hospital.

What makes this a good war novel, though, is not its depictions of conflict but its reckoning with what comes after. The young Englishmen who fought in World War I were raised on the heroic tales of H. Rider Haggard; they felt righteousness on their side; they crossed the Channel looking for glory. As Ash writes in his diary, the clash of those ideals with the grim realities of trench warfare left some wondering whether mortality and immortality were, in the context of this horror show, complementary terms:

Began to think that there's something about a



FAMILY HISTORY

De Bernières dedicates the book to his grandmother's first fiancé, killed in 1915



young man that makes him want to die, and die well, whilst still at the height of life, whilst still not tired of it. Or maybe war so terrible that the prospect of death entices. Is it a comfort not to have to face the future?

And so those who don't die emerge shocked by their very existence. "What are we supposed to do with so much life unexpectedly left over?" asks one survivor, in curious earnest.

The novelist knows how to answer that question. No character in *The Dust That Falls From Dreams* is ever so blithe as to forget the dead. But the new world they fashion from grief and despair is more free, more mature and perhaps more rewarding than that Edwardian idyll so abruptly shattered. It's a world where women leave the drawing room to thrive as professionals, where the barriers between servants and masters begin to break down, where Rosie and her husband can make a fresh start in a far-off land. It would be too simple to call theirs a happy ending. But one could justly describe what they find as peace.

—RADHIKA JONES



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PICKS

MUSIC

On her first album in six years, *Male*, out now, "Torn" singer **Natalie Imbruglia** covers songs originally sung by men, from Tom Petty to Death Cab for Cutie.



TELEVISION

Following the success of *Broad City*, Amy Poehler uses her producing prowess to highlight another comedy duo, Billy Eichner and Julie Klausner, in ***Difficult People***, on Hulu on Aug. 5.

BOOKS

Tanwi Nandini Islam makes waves with her debut novel, ***Bright Lines*** (Aug. 11), which traverses from Bangladesh to Brooklyn, exploring the secrets of three young women.

MOVIES

Superhero reboot ***Fantastic Four***, out Aug. 7, boasts an impressive young cast, including Miles Teller, Kate Mara and Michael B. Jordan (below).



MOVIES

Meryl's bad movie moms are a *Flash* of inspiration

MERYL STREEP IS THE KIND of mother most of us envy: four children, three Oscars, dozens of films—and only one husband. Like every other famously successful woman, she's often asked how she does it. For instance, how did she manage the trade-offs between her success and the needs of young kids? And while she usually responds to that tedious, somewhat sexist question with humility, noting the privileges of her line of work, her ability to balance it all seems effortless.

So there's rich irony in the fact that so many of the mothers Streep has played over the past 40 years are pretty much the opposite of balanced. Their decisions are fraught and their mistakes heavily penalized. From *Sophie's Choice* to *A Cry in the Dark* to *The Devil Wears Prada*, her characters raise uncomfortable, complicated questions about motherhood and our expectations of women.

Streep's latest mom role, as Ricki Rendazzo in *Ricki and the Flash*, has a light, *Mamma Mia!* vibe, but it still hits all those hot buttons. Ricki abandons her three children to pursue her dream of becoming a rock star. Years later, she's working as a grocery clerk by day and singing cover songs with her band, the Flash, in a local bar. She looks happy onstage. But when her eldest child, Julie (played by Streep's real-life daughter Mamie Gummer), has a crisis, Ricki goes home to face her kids and her



As Ricki, Streep chooses music—and '80s rocker Springfield—over maternal expectations, with Gummer as her eldest child

ex-husband (Kevin Kline).

Directed by Jonathan Demme, the frolicking *Ricki* won't win Streep another Oscar, but Ricki herself has a lot in common with yet another Meryl mom, Joanna from 1979's *Kramer vs. Kramer*. Streep won her first Oscar for her portrayal of a young mom who leaves her son with his dad (Dustin Hoffman) for more than a year because she is losing her mind as a housewife. As she puts it, "I have gone away because I must find something interesting to do for myself in the world. Everybody has to, and so do I. Being your mommy was one thing, but there are other things too." When she returns, she finds she can't get back what she gave up and is judged harshly. Still, she doesn't regret finding a career.

Neither does Ricki. And while things do get sentimental in Diablo Cody's screenplay—as any movie with a wedding scene tends to—Ricki doesn't cut her rocker's braids. In fact, from the first scene it's clear that

singing is this woman's ultimate joy and calling—even if she makes no money and despite the sacrifices she's made. In a memorable moment, Ricki defends her place onstage, raging against the idea that it's O.K. for men to leave their children to be musicians, but if a mother messes up at home, she's "a monster."

It's hard to believe that 36 years after *Kramer vs. Kramer*, the parameters for women are still so inflexible. But when was the last time you heard a celebrity mom admit that there are times when her work does come first? Maybe that's why Ricki's time with the Flash feels escapist, even a little subversive. Watching a 66-year-old Streep look great in leather pants, singing Tom Petty and Bruce Springsteen songs like a pro and pausing to kiss her lead guitarist (1980s heart-throb Rick Springfield), you couldn't imagine anyone wanting to keep her in the kitchen, not even her kids.

—SUSANNA SCHROBSDORFF

MOVIES

Dear Diary is an honest entry on teen sexuality

IT IS A TRUTH SURPRISINGLY UNACKNOWLEDGED THAT A woman in possession of average intelligence can pretty much tell within the space of one look, gesture or camera shot whether a movie about sexual awakening is honest or full of hooey. The moment of glorious authenticity—whew!—arrives within the opening minute of *The Diary of a Teenage Girl*. In 1970s San Francisco, 15-year-old Minnie (the remarkably expressive, unmannered British actor Bel Powley, now 23) has just had sex for the first time. It happens to have been with her mother's boyfriend, Monroe—perfectly played by Alexander Skarsgård—but we'll get to that in a minute. As Minnie skips, twirls and strides home to her teen-lair bedroom to confide the astounding news to her audiotape diary, filmmaker Marielle Heller collaborates with Powley to convey perfectly the mix of secret pride, amazement, hunger for more and do-I-look-different-now? wonder that might realistically accompany such a momentous event. Can the boys she passes on her way home see the transformation? Studying her reflection in the mirror, can she?

A vibrant, stylistically assured adaptation of a 2002 autobiographical graphic novel by Phoebe Gloeckner, *The Diary*—a hit out of this year's Sundance Film Festival—inevitably arrives trailing cultural chatter. How wrong is it that Minnie is a minor, that Monroe is some two decades older, that Minnie really digs sex and that

Monroe isn't a pedophile monster? How wrong is it that Minnie's mother (Kristen Wiig, beautifully serious and vulnerable) is a drinking, pot-smoking flaky bohemian chick who is raising Minnie and her younger sister with benign neglect? Let a thousand op-eds bloom, but Heller, who first adapted the novel as a 2010 theater piece (in which she starred) and also wrote the screenplay, is not interested in passing judgment. Aside from its R rating, nothing terrible happens.

The filmmaker is instead keenly attuned to mood and physical sensation, feminine desires and reasonable doubts, with a lovely visual sense of muted grooviness created by cinematographer Brandon Trost. An aspiring cartoonist influenced by the groundbreaking feminist-comics chick Aline Kominsky, Minnie fills notebooks with graphic images that come to life onscreen in fabulously fleshy animations. The result—believable, hopeful, tender, delightful—is a movie of (increasingly rare) truly indie sensibility, made by women who are confident about healthy feminine resilience.

—LISA SCHWARZBAUM

**MUSIC**

A tribute to dance floors of decades past

SWEDISH POP Matriarch
Robyn, who's toured with Coldplay and Katy Perry, is regarded as one of her genre's most forward-thinking artists, but on her new "mini album" *Love Is Free*, out Aug. 7, she looks to the past instead of the future.

Recorded under the name La Bagatelle Magique alongside keyboardist Markus Jägerstedt and producer Christian Falk, who died last year of pancreatic cancer, the five-song set honors the club sounds of a bygone era, like a deep dive through dusty vinyl bins. The trio scrub some Stockholm polish all over a brassy cover of Arthur Russell's 1983 disco jam "Tell You (Today)," while the title track flips an obscure house sample into a thundering ballroom anthem with New York rapper Maluca.

Here, Robyn largely steers clear of traditional choruses; these are sprawling odes to dance-floor liberation, not songs for the radio. It's a minor shame, considering few of her pop-star peers can pen hooks as poignant and catchy as the ones she wrote on her critically acclaimed 2010 opus, *Body Talk*. But by taking a step back and letting the beats do the talking, Robyn shows that even in music's flashiest corners, sometimes less really is more.

—NOLAN FEENEY



▲ BOHEMIAN LIKE ME

Wiig and Powley (center) are an offbeat mother-daughter pairing, with both in pursuit of sensual pleasure—and the same man

Time Off PopChart



The Denver police department has begun rewarding courteous, law-abiding citizens with free pizza. Officers will hand out Papa John's gift cards that read:

'You got caught doing something right.'



Mariah Carey will make her directorial debut with—what else?—a Christmas special on the Hallmark Channel

TIME'S WEEKLY TAKE ON

**LOVE IT
LEAVE IT**



Instagram artist @JessieBearden uses food to "paint" portraits of cultural icons. Among them (clockwise from top left): John Lennon, Caitlyn Jenner, John F. Kennedy and Notorious B.I.G.



Japanese distillery Suntory is going to age some of its whiskey aboard the International Space Station



Cindy Crawford is developing a TV series for NBC about models in the '80s, tentatively titled *Icon*

WHAT POPPED IN CULTURE



The Russian government has commissioned a task force to determine whether gay-themed emojis pose a threat to children



J.J. Abrams revealed that he broke his back helping an injured Harrison Ford on the set of *Star Wars: The Force Awakens*

Destination America will air what it's claiming will be **America's first live televised exorcism** on the night before Halloween

Lexus unveiled a real-life hoverboard—but it **works only above surfaces with a decent magnetic field**, like metal



HitchBOT, the hitchhiking robot that had made successful trips through Canada, Germany and the Netherlands, was **vandalized in Philadelphia**, abruptly ending its journey across America



HBO programming president Michael Lombardo confirmed that despite fan speculation, beloved *Game of Thrones* protagonist Jon Snow was killed at the end of the fifth season:

'Dead is dead is dead is dead. He be dead.'





THE AMATEUR

What I learned this summer about the Waze and means of parenting three sons

By Kristin van Ogtrop

I'M NOT SURE WHICH HAS BEEN A MORE LIFE-CHANGING discovery this summer: missing my teenager, or realizing that I may have an unhealthy dependence on Waze.

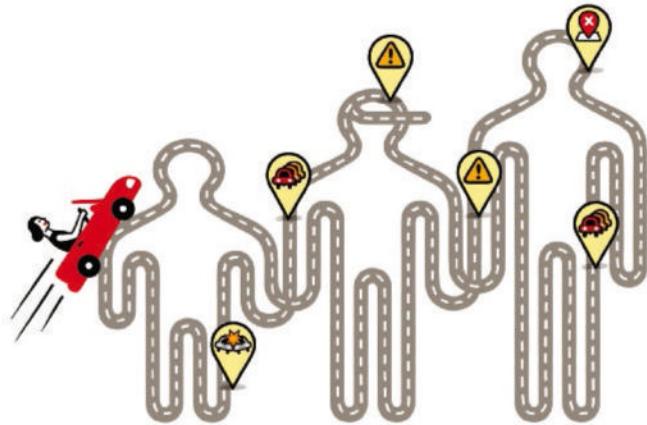
How did these discoveries come about? I miss my teenager because he is working at a sleepaway camp for six weeks, and absence makes the heart forget how aggravating teens can be. And Waze, the crowdsourced traffic app that helps you find weird shortcuts and avoid the police, has made summer driving so easy that I'm now convinced I need its equivalent in every area of my life. Imagine the possibilities: cooking (you're out of scallions!); laundry (red sock hidden in the load of whites!); getting dressed in the morning (don't even think about trying to fit into those pants!). My devotion to Waze is so complete that I have even anthropomorphized the faux-female voice into a petite, tough-but-kind grannyish woman—think Dr. Ruth, but a smidge younger and without the accent—who exists solely to make my life better.

My imagination hits a giant roadblock, however, when I apply the app to raising children in general, and teens in particular. Is this a failure of my imagination, or of technology? It doesn't matter: August is upon us, and the clock is ticking. You see, some women use summer to improve their fitness so they'll look better on the beach. I use summer to improve my parenting skills so my kids will love me more and choose a nicer inscription to put on my headstone. But can Waze navigate the tricky, unpredictable, dark and winding terrain that's inside the skull of a teenage boy? I don't think there's an app for that.

So I must rely on those things they call books to improve my life, my parenting and my chances of getting a headstone inscription that will reduce even strangers to tears.

I HAVE THREE SONS: one who has made it through his teen years, one who is in the thick of them and one who is still in the single digits. As a test-drive, as it were, I thought I'd focus on my eldest, because I reckon most of my opportunities to screw up a 20-year-old have already happened. I picked up *How to Raise an Adult* by Julie Lythcott-Haims, the former dean of freshman and undergraduate advising at Stanford University. From Lythcott-Haims I learned that I should strive to be an authoritative parent ("demanding and responsive") who helps my child experience the state of "flow," where the rest of the world falls away and he loses all track of time. Oh, and by age 20 my son should definitely be able to schedule his own (irony alert) pediatrician appointments. See, sweetie, I'm not the only one who thinks you need to make that happen.

Then I turned to my teen. This is a boy who has no interest in a gap year and is not the sort who will park it back home after college. Meaning I've got about one year at home with



him in which to correct all the mistakes I've made in the past 17. Such an effort requires significant study, and to the rescue comes *The Teenage Brain* by Frances E. Jensen, who is the head of the neurology department at the University of Pennsylvania medical school and has two sons of her own who apparently survived into adulthood. From her I learned that the brain matures from the back to the front, that my 17-year-old has a legitimate biological reason for not being able to return a phone call and that I must not be shocked when he does something stupid but can't tell me why. Hopefully *does something stupid* does not mean marrying a sociopath or getting a giant face tattoo before his prefrontal cortex is fully developed in his mid-20s. Just eight short nail-biting years to go.

MORE THAN ANYTHING, the message of Jensen's book seems to be acceptance. And boy do I wish there were an app for that. After two decades of this child-rearing journey I know I can offer all the directions I want, but my sons are driving. And it's up to them to figure out where they're going. I remain a passenger (well, backseat driver) who longs for a clear road map. I've stopped hoping Waze is the answer. Still, what I wouldn't give to hear that calm, supportive voice warn me whenever there is a rough parenting road ahead.

Van Ogtrop is the managing editor of Real Simple

Anthony Bourdain At work on a global food hall in New York City and a new season of his television show, the chef and author dishes on the way we eat now

Your food hall will feature all kinds of global cuisines. Is there anything like this that exists now? In the world, yes. I'm looking very much at a Singaporean hawker center as a model. Or a Chinese *dai pai dong*, like they have in Hong Kong. But there is nothing like it in the States that I'm aware of. And there's certainly nothing like it in New York. It's an amazement to me that nobody has done that.

It seems like there's more American interest in food than ever before.

We used to get together with our friends to see a movie, after which we'd go have dinner to talk about the movie. Now we just go straight to dinner and talk about the dinner. And we take pictures of our food while we're doing it.

What do you hate most about food culture in the U.S. today? The word *authentic* has become a completely ridiculous, snobbish term. There are so many first- and second-generation immigrants making wonderful mash-ups of food they grew up eating. On the other hand, I'm pretty sure that every time Guy Fieri puts barbecue pork inside a nori roll, an angel dies.

Has the restaurant world changed too? Your memoir *Kitchen Confidential* painted a pretty bleak picture.

The type of people who are attracted to the business has stayed the same since the 19th century. But acceptable behavior has changed completely. When I was midcareer, you could work in a good restaurant and do cocaine in the walk-in. We smoked in the kitchen.

Everyone envies your gig—writer, speaker. How did it all come about?

I had a big and very unexpected success in *Kitchen Confidential*. A lot of people offered me things in the wake of that, and I was careful about what I said yes to. I live by something called a no-a-hole rule: Whatever it is I'm considering, I ask myself, whoever I have to deal with in this project, if they call me at 11 o'clock

at night, will it be O.K.? I don't want to have to pick up thinking, Oh, that a-hole's on the phone.

You didn't expect anything like this, did you? I certainly did not. I thought at 43 years of age, I was pretty much toast. It was going to be me and a deep fryer—dunking fries until the end.

You've traveled practically everywhere for your TV shows. What locale has surprised you the most?

Uruguay was amazing. Croatian food was really, really spectacular. Budapest was mind-blowing. And Marseille. That is a great, undiscovered major, major center of awesomeness. Nobody goes; they have a terrible reputation for some reason. But Marseille is just fantastic.

Does your 8-year-old daughter, Ariane, have your taste for the exotic? She's very adventurous. Her mom—my wife—is Italian, so she grew up eating basically the Italian table: squid and octopus and oysters and game. She's very open to sardines and things that most kids don't like. And she watches a lot of food TV. She loves Food Network. Given the awful things I've said about Food Network, I'm probably getting some kind of what I deserve.

On TV, you seem to eat a lot and not gain any weight.

How do you do it? Well, I did gain a lot of weight. I've lost, like, 30 lb. [14 kg] in the last year or so. That's not been because I've been working at it. I haven't been lifting weights or running on a StairMaster. I hate exercise. I do like Brazilian jiu-jitsu.

What's your preferred takeout strategy for an enemy? Scorn.

—JACK DICKEY

'I'm pretty sure that every time Guy Fieri puts barbecue pork inside a nori roll, an angel dies.'



HEIDI GUTTMAN—ABC/GETTY IMAGES

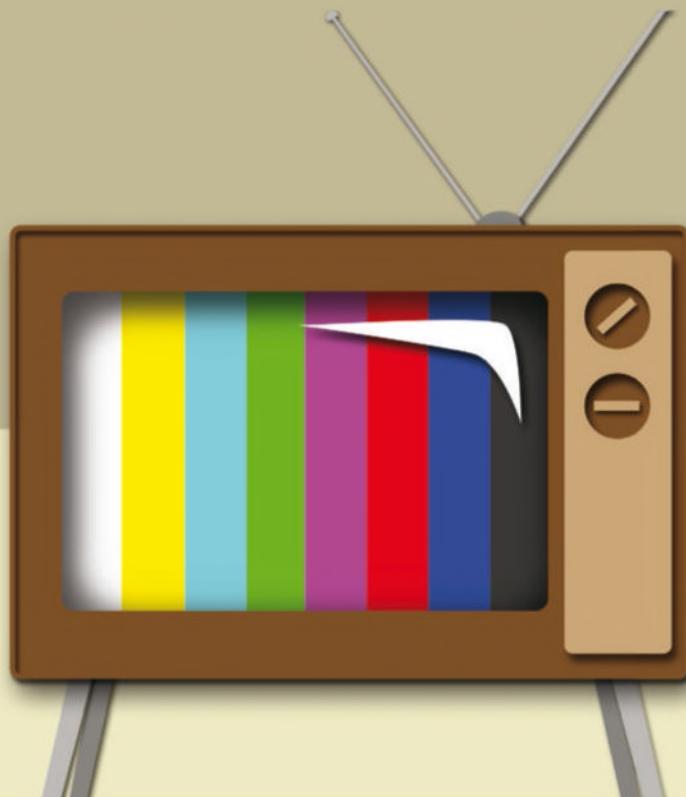
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